Southwestern AVIATION

DECEMBER 1934

Landing Blind

Made in Texas

A Factory and A Man

Export

A Bus Line Flys

Aircraft 1934

Keilet KD1 Wingless Giro

Laird DeLuxe Sesquiplane

20¢

Cowboys, Airmen and Quality

Even as of old, cowboys of our own day ride many miles to have their boots fitted and made by hand. In every little cattle town the supreme artisan is the old bootmaker. The quality he builds into his boots goes unquestioned and the cowboy demands that quality, accepting no substitutes.

And so it is with the modern airman or operator who demands quality in what he flys, in what he buys, in what he reads.

The inherent quality of Southwestern Aviation has been a predominant factor in gaining the approval and support of airmen and operators in the South and Southwest. Its quality penetrates even into the details of format: clear, fair-sized type, descriptive photography, make-up with forethought, painstaking printing and high-grade paper, meeting the exacting requirements of established airmen and operators—gaining a host of friends among countless potential aeronauts. Southwestern Aviation is a quality periodical circulating into a quality market; a medium of advertising for quality products, equipment and services.

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Editorials and Comments

Thirty-first Year

Orville Wright will perhaps experience a glow of satisfaction this month when a great nation and a great industry pay him tribute in observance of the thirty-first year of flight. Planes in every branch of aviation in every locality will take to the air at 10:30 o'clock in the morning of December 17, honoring the "grand old man" of aviation and that memorable morning at Kitty Hawk in 1903. Meetings will be held to commemorate the date and occasion; addresses will be made by men of prominence on the progress of flight in the past thirty-one years. December 17 will be indeed an appropriate National Aviation Day.

But we hazard the belief that the thirty-first year is replete with significance to Orville Wright not so much from the standpoint of the respectful thousands who salute and honor him, but rather from the realization that his plane, too long in England, will repose in the native land where it first found flight, where it rightly belongs, where it should have been from the beginning.

Question of the Hour

The mistakes perpetrated by the Federal Government in its attempt to correct mistakes in the aviation realm are still fresh in our minds as the year draws to a close.

Foregoing the much agitated subject that has concerned almost everybody everywhere, eschewing the questions of right and wrong involved in past actions, let us look to the present moment and find a true and logical index to the immediate future of aviation in the United States.

In the first place, we must remember that the President appointed the Federal Aviation Commission— the supreme council of aeronautics— to study every phase of aviation and determine the course of Federal policy in the future by making its recommendations to the next Congress. In the preponderance of testimony brought before the Commission during the past three months, requests for a *permanent* Federal Aviation Commission have been almost unanimous. That demand will assuredly be included in the brief presented to Congress. And *permanent* policy, if attained, would mean the divorcement of aviation from political chicanery, which has been aviation's retarding factor.

We cannot deny that some apprehension exists as to what Congress is going to do about it. The question of the hour is briefly this: "Will the new Congress enact such legislation as recommended by the presidential body or will it permit an uninstructed, radical and biased minority to further undermine confidence, to strangle a new industry that has been the pride of every American and an achievement of the past decade?"

But any great amount of apprehension is unfounded. Look to the hopelessness of recent attempts for disarmament. Look to the Baker Report. Look to the bulk of testimony brought before the Commission. Look to the current expansion of our domestic and international transport companies, in spite of depression, politics and reduced income. Look to the consistent rise of aircraft issues "on the board". Look to research and the new avenues that are opening up— transoceanic passenger, mail and freight and stratosphere flight. Consider these and other concrete, most favorable indices and find the dawn of a new era for aviation in spite of certain incurable pessimists who are fraught with fear and are prone to sell aviation short.

The Congress has no alternative other than the enaction of legislation prescribed by the President through his self-appointed Commission. And the enaction of that prescribed legislation will not only restore complete confidence to the industry but will have an indirect effect on all industry, bringing the nation closer to industrial prosperity. In aviation it will preserve world supremacy for the United States and will guarantee reasonable profit, steady progress and an incentive for growth and expansion.

Wanted: Salesmen

A growing list of successful, well-organized and efficiently operated airplane sales organizations has been evident throughout the United States in 1934. Although many individual cases deserve space, suffice it to study the figures and facts to find that more airplanes have been sold this year than in several years previous. In spite of a depression year, increased profits have accrued to many individuals and establishments in the selling phase of the business.

Even a superficial survey of a few instances informs us that a large measure of the success has come from a definite entry into virgin markets. The sales organizations have gone into the field, vigorously contacting individuals and established companies never before approached, but long in need of airplanes in the ordinary dispatch of their commercial pursuits.

To adequately impress this clientele to the point of a sale, it takes considerably more than just a flight demonstration. It takes more than one call or an invitation to "come out to the airport". Any mediocre electrician can explain and demonstrate the excellencies of an electric refrigerator but completely fall down when it comes to closing a sale. So does it require more than just a flight demonstration to get the final papers signed and the check written.

Increased sales and profits shown in 1934 by sound, aggressive sales organizations will continue, and in all probability, the records will be surpassed in 1935 by the addition of other alert, well-trained salesmen who continue to establish themselves in aviation, combining modern methods of salesmanship with flight knowledge to bring commercial, professional and industrial America to modern transportation by marketing the superior aircraft now available for every purse and purpose.

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THE COVER:

"MOSAIC OF '34"

When the air mail contracts were cancelled in February, it looked like "zero, zero" for Aviation in 1934. But the revamping of Governmental policy proceeding under the direction of the Federal Aviation Commission, the production of new, vastly superior flying equipment for every phase of aeronautics, the marked advances in aircraft sales, in air travel, in express and mail poundage, the epochal improvement of airports and airways have all combined to bring aviation out of the doldrums to new heights of achievement in transportation and national defense. As the year hastens to a close the finger points to even greater success for the advancement of the arts of the air in 1935.

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Landing Blind

By H. L. Lewis

The adoption of the Army Air Corp's radio blind landing system by the Bureau of Air Commerce brings into pre-eminence this most practical and successful of all the various systems investigated by the Bureau during months of research and rigid tests. Herewith is the system's history, its development and practical application.

HIGH over Wright Field, Ohio, not long ago several big Douglas observation planes were circling lazily around, their chrome yellow wings a bright splash of color against the leaden sky. Dark, scudding clouds began to sweep low across the field, borne on a stiff gale from the south. Then, before any of the planes had a chance to land, a heavy fog bank came rolling in, completely inundating Wright Field and the surrounding territory.

Personnel on the ground became alarmed for the safety of the entrapped pilots. Immediately, the powerful airdrome floodlights were turned on and like great probing fingers their beams swung back and forth. They could offer little aid, for the density of the mist was so great that the lights could not penetrate it. They appeared as if focused on a white wall.

Overhead, the drone of engines could be heard milling around like bees about a hive as the flyers searched for a hole in the murk that they could slide through. Then several of the planes high-tailed off, hoping to outrun the fog.

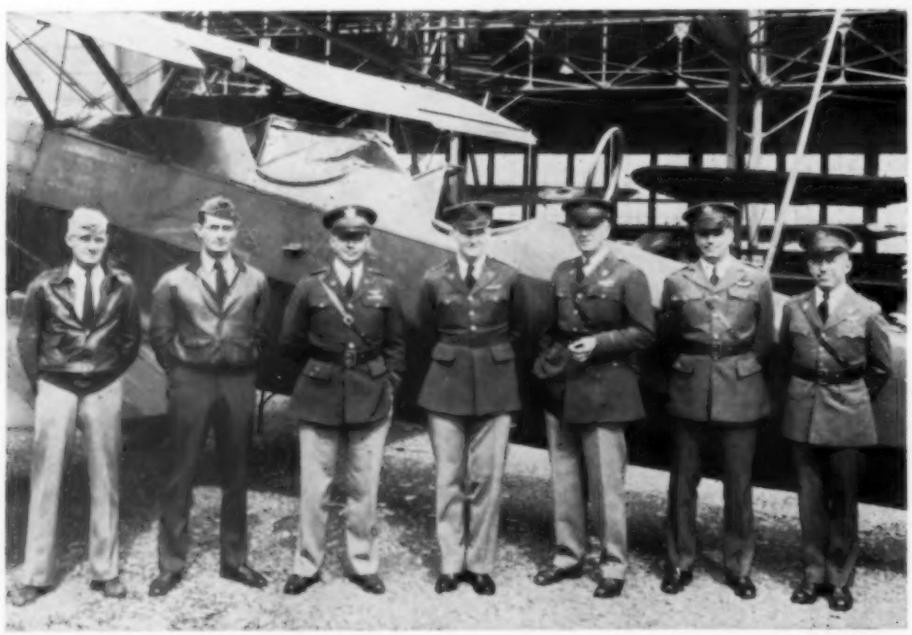
A little later, persons on the ground heard an engine throttled down and the shrill, metallic scream of the wind in the flying wires. A ship was evidently coming in for a landing. It would take x-ray eyes to see anything through that soup. "Must be 'Hegy'," somebody exclaimed.

And "Hegy" it was. Captain Al Hegenberger, hero of the first flight from the United States to Hawaii and one of the Army's blind flying experts, was at the controls of the plane that was plunging toward an invisible earth at more than a mile a minute. The fog was so thick that Hegenberger could not see even his own wing-tips. Great streamers of the cold, wet mist sped past his cockpit like steam. Hegy was not even looking for the earth. His eyes were glued to his instrument panel as he jockeyed stick and rudder.

Lower and lower the plane approached to the ground. It was invisible to the watching group of officers as it swept by just above the hangars and settled down on the field. They heard the rumble of the landing gear as the plane touched the ground. It came to a stop and then—had this man gone crazy?—the engine roared wide open and the plane took off!

Hegenberger wiped the rain from his face and smiled to himself as his ship gained altitude once more. This was just the opportunity he had been waiting for. He had spent months helping to develop the system of landing blind and had made a great many landings while his cockpit was hooded. But here was a chance for the real thing — a test as rigid as anyone could ask for.

As he climbed above the top of the cloud bank, another plane was circling around. Its pilot did not have equipment to enable him to ride down invisible skypaths such as did Hegenberger. He immediately flew alongside and signalled that he wanted to follow on Hegenberger's tail down



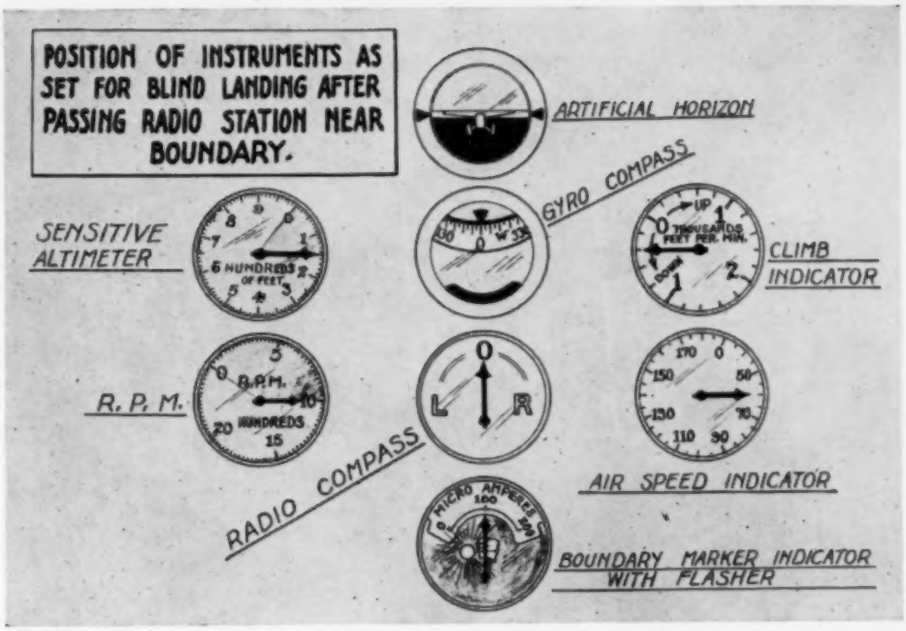
"HEGY" & COMPANY

The first class of "Blind Landing" pilots ever to be graduated. Left to Right: Lt. G. V. Holloman, Lt. S. E. Prudhomme, Capt. A. F. Hegenberger (Chief Instructor), Lt. L. F. Harman, Major F. H. Coleman, Lt. R. J. Minty, and Lt. C. D. McAllister.

The "Blind Flying" airplane shown is equipped with hooded cockpit, radio and all necessary instruments.

to a landing. Hegy nodded and once more entered the soup, escorting his less fortunate brother officer. It was a ticklish operation, but it worked successfully and both planes landed safely.

Thus did Hegenberger prove to the skeptics that his system of licking the jink of bad weather was equal to the most severe demands. This system and the radio compass are two of the most important links in the chain of equipment designed by the Air Corps for instrument flying and landing.



The Formula

Let us climb into the cockpit and take a hop with Captain Hegenberger and learn just what we have to do to find our way about the airways when weather conditions make us as blind as the proverbial bat.

On the instrument panel are an artificial horizon, directional gyroscope, magnetic compass, airspeed indicator, sensitive altimeter, boundary marker indicator, and a visual type indicator giving right and left directions. Under the instrument panel we find a familiar standard type radio receiver.

Once we are in the air, this receiver will be the first thing we will want to use, for it is the instrument we will depend on to lead us to the airport. The radio compass enables an airman to tune in on any type of radio transmitter, including commercial broadcasting stations, and by setting his course to coincide with the maximum strength of the signals or broadcasts, he may fly direct to the location of the station. Its operation is extremely simple. We tune in on the desired station which can be identified by its frequency or call letters. When we are sure of the correctness of our tuning, we throw a switch and immediately a needle on our instrument panel comes to life. The location of the center, or the on-course position, is indicated by zero. The letters "L" and "R" are to the left and right of zero and a deflection of the needle toward either letter indicates that the plane has swerved from its course in that direction. All we have to do is just to keep the needle centered and we will strike the broadcasting station square on the nose.

Now here is something else we have to consider. Suppose when we tune in the needle is pointed directly at zero. We know that we are on course, but we don't know whether we are headed for the station or away from it. The only way to find out is to wing the plane from left to right across the direction of the line connecting us with the transmitting station. If the needle swings from right to left—opposite the direction of the plane—we are headed toward the station. But if the needle swings from left to right in the same direction as the plane, we are headed away from the station and to get back on course we must keep turning until the needle again rests on zero. This time we will be going in the right direction.

When we arrive directly over the transmitting antenna of the station, the indicator needle will swing rapidly from side to side, and will not stop oscillating until the station has been passed. We are now in the vicinity of the landing field and we must make a new tuning with the radio compass, and find a radio control guiding station located about 1,000 feet beyond the field's boundary and in the direction from the center of the field that the wind is blowing.

Suddenly a light flashes on our instrument panel. We have passed over the station 1,000 feet from the field. Immediately, we swing the knob on our receiving set to the frequency of another transmitter located 8,000 feet away and on a line with the first station. We are headed away from the field and we put our nose down slightly to lose altitude, carefully watching the artificial horizon to check the angle of our glide. We set our directional gyro at zero so that when we reach the second transmitter we can check our turn back into the wind and in the direction of the field.

Soon there is another flash of the light on our instrument panel. This is the 8,000 foot beacon. Watching our directional gyro we make a wide 180-degree turn, which brings us back in line with the two stations but headed toward the center of the landing field. We should now be at about 600 feet and, checking our sensitive altimeter, we continue to lose altitude until by the time we reach the station 1,000 feet from the field, we are at about 150 feet. We now throttle our engine to about 1,000 revolutions per minute and glide

down for contact with the ground. By carefully watching our artifiical horizon, the directional gyro, and the sensitive altimeter (we could use another pair of eyes) we make a power landing at the center of the field, touching wheels first.

Easy to Master

The system is really much simpler than it sounds and requires but a little practice to be mastered by an experienced pilot. Moreover, the hundreds of test flights that have been made with the pilot under the hood are more exacting than those in actual fog. It has been found that even in fogs of the greatest density, when looking vertically downward visibility can usually be had to an extent of about fifty feet. This is sufficient to enable the pilot to cut the engine and to make the natural three-point landing instead of the power landing necessary when there is no visibility whatever.

In the development of this system, simplicity and practicability have been constant watchwords; ruggedness, low cost of production, and portability for emergency purposes emphasized military requirements. As a result the airplane blind flying equipment adds but little to the initial weight of the airplane fitted for standard use, while the ground equipment is so compact that it can be flown from place to place in an airplane or transported by motorcycle with side car.

The first "blind landing" school has been organized at Wright Field with Captain Hegenberger as professor, and the first class of aviators ever to be qualified as "blind landing pilots" has recently graduated. The chief purpose in the organization of the blind-landing class was to demonstrate the general adaptability of the pilot to the system and to learn the average number of hours necessary for him to become proficient in it. Pilots with little previous instrument flying were selected. All practice was flown with the hooded cockpit which prevented the slightest vision of earth, sky, or horizon. Count was kept of all practice hours flown under the project. An observer was carried in an open cockpit to check results and also to prevent collisions with other flying craft, but to be credited, the flights and landings had to be strictly unassisted in all respects, and the student remained under the hood until he brought the airplane to a dead stop on the runway.

The final test which the student was compelled to meet before being pronounced a blind landing pilot was made rather exacting. Each pilot was required to make five flights completely blind, including take-off and landing, out from Wright Field a sufficient distance to make a return visually impossible except by aid of the blind flying system, to return to the field along a definite line of approach indicated by his instruments, to cross the field boundary at an altitude from which he would neither undershoot or overshoot the landing area and, last but not least, to make five perfect demonstration landings, the last three to occur in succession. The purpose of the three final perfect blind landings in succession was to establish a degree of expertness with the system, reducing the chance element to a minimum.

An average of twelve practice hours each enabled all members of the class to meet the final test successfully. It was the experience of the students that the greatest step was taken in accomplishing the first blind landing. This involves a certain psychological adjustment in which he replaces his human senses completely with instrument senses. This is a difficult thing to do. A pilot must learn to completely suppress his own reactions and put implicit faith in his instruments. For instance, when a plane is leveled off after a spiral in either direction, the pilot, if he cannot see the horizon, immediately has the sensation for several minutes of turning in the opposite direction. The sensation is very real and vivid, but his gyro compass shows him that he is flying straight and he must disregard his own reactions. Likewise, making a landing with power is a difficult thing to become accustomed to.

Once the adjustment was made, however, it was found that the whole system smoothed itself into a simple and reliable plan in which he quickly gained confidence. The shortest practice time flown with the system by a student before accomplishing the first blind landing was one hour and twenty minutes; the longest was five hours and fifty minutes. Even the longest total time, however, proved a remarkably short period to devote to a project promising such full assurance of safety in emergency.

The graduation of this class marks the second definite step of advancement for the Air Corps blind landing system, the first step having been the first solo blind flight and landing. Although many systems for blind landings have been proposed and demonstrated in the past few years, the Air Corps system is the only one under which either a blind solo flight or the training and graduating of a number of pilots has been accomplished.

Success and Acceptance

Just recently, the Bureau of Air Commerce, testing the system over a period of many months with multi-motored transport equipment, has adopted it for procurement and installation, making tentative plans for installing the blind landing equipment along a transcontinental air route for commercial tests. The Bureau pilots have made more than 150 unassisted landings with the system in operation. Chester A. Snow, Jr., in charge of the tests for the Bureau, worked in conjunction with Air Corps personnel prior to final acceptance of the system as the most practical of several under consideration.

Invitations have been issued by the Bureau of Air Commerce to representatives of airlines to send groups of their operations and technical staffs and expert instrument pilots to Dayton for participation in the demonstrations of the system, to the end that commercial aviation might have the benefit of a perfected system for landing blind.

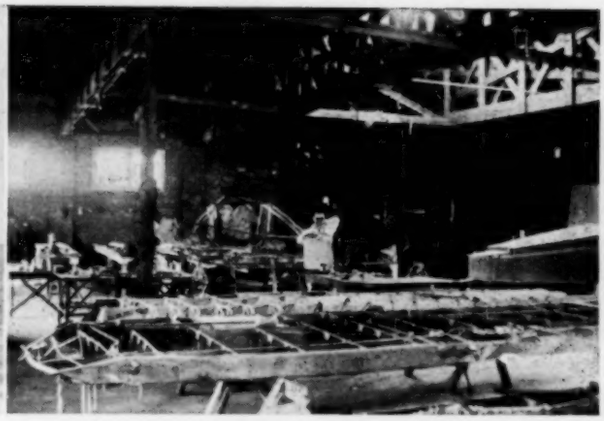
Made-in-Texas

States Aircraft Corporation Shows Progress in 1934

By Larry J. Fisher

THE PLANE

Small, compact and rigid, the States two-place monoplane cruises at 115 m. p. h. with the Kinner K-5 engine.



STATES' PLANT

A completely new, fully equipped factory building will soon house the manufacturing and repair facilites.

LOCATED among the pines of East Texas is the factory of the States monoplane, the only built-in-Texas airplane. And behind it is the interesting story of a man who liked flying so well that he purchased an airplane factory.

The States was originally built in Chicago Heights, Illinois, and, along with a great many other airplane factories, the plant closed down after the great aviation boom. Meanwhile, J. B. Sanders, assistant cashier of a bank in Center, Texas, had become interested in blind flying and had acquired a Hisso-Travelair. The Center airport existed mainly in name but he managed to get his Travelair in and out of a small landing strip among the woods.

In July, 1933, Sanders purchased the States plant and moved it from Chicago to Texas, together with most of the old employees including the original test pilot. With the plant came an approved repair station, so now, in addition to the States factory, the little East Texas town of Center has one of the seven approved repair stations in the entire state.

The States is a high wing monoplane powered with a Kinner motor. Its fuselage is of chrome molybdenum and 1025 S.A.E. steel tubing, welded. The spars and ribs are of solid spruce and the leading edge of the wing is plywood covered.

This two-place job, under full load and with the Kinner B-5 has a top speed of 130 M. P. H., cruising 115 M. P. H., and lands at 40 M. P. H. With the Kinner K-5 top is 105, cruising 95 and landing 35 M. P. H.

Several planes have been turned out since the plant was erected and their owners speak highly of the plane's performance. With the erection of a new two-story building on the Center airport, the factory is expected to be in full production soon. The plant building, 100 x 170, will house the factory and repair station equipment at present located down town. The repair station holds all Department of Commerce ratings. The machine shop equipment includes lathes, nibbler, hand shear, vertical and band saws, beading, sanding, and routing machines. The estimated cost of the machine shop alone is $6,441.

The large stock room of the States factory has on hand about $1,710 of steel tubing, fabric, dope, paint, shock cord, spruce, balsa, plywood, motor parts, aluminum and other airplane essentials. The plant also has a heated and dust-proof dope room.

WITH the airplane factory established, there came the necessity of having an adequate airport. Fortunately, CWA projects were under way about this time and Sanders was able, after much hard work, to secure a grant of $12,000 for Center. Additional funds to the amount of $2,000 were obtained and now the little city has one of the finest airports in East Texas. Formal dedication of the 160-acre airport was held on May 20, this year, and the visiting pilot finds this field, with its 2,400 and 2,700-foot runways, a real haven among the East Texas trees. The field has a hangar, club rooms, gas and oil, and telephone. Transportation to town is available by circling over the city. Two large markers have been erected downtown. The new factory, mentioned above, is to be located here.

Dr. L. S. Oates has been appointed medical examiner for Center and this air-minded town will soon have a good group of fledgling pilots.

The approved repair station has been kept very busy lately with repair and rebuild work. A Great Lakes from Houston, a rebuild of two Waco wings for C. Matherson, Henderson, Texas, an Inland Sport for W. S. Young, Shreveport, and a Stearman, Commandaire, and Monocoupe recover have been turned out recently. On this staff are Joe Isvolt, in charge of construction, L. A. Downes, test pilot, and Leo Childs and Orville Metcalf, together with their helpers.

A Factory and A Man

By Albert Dorris

LONG before Gerard F. Vultee graduated with the class of 1919 at the old Polytechnic High School in Los Angeles, he wanted to become a mechanical engineer, and long before he had time to graduate from the University of California at Los Angeles, he didn't. At the time no one knew the reason for the change of mind and nowadays nobody gives a whoop. Just let it go that mechanical engineering was out so far as Jerry was concerned.

Then along came a gabby old Sunday newspaper in which was printed a deluge of words telling little or nothing about a wind-tunnel over at the California Institute of Technology in Pasadena. The description was just as clear as mud and Jerry was an inquisitive soul. His curiosity got the better of him and he breezed over to Caltech to do a bit of private snooping.

Some young men fall for blondes, or brunettes and/or redheads, but history fails to relate that anything feminine ever fascinated a youth like that old wind-tunnel did our Jerry. He hasn't been the same since that eventful afternoon.

The official chaperone of the wind-tunnel was Professor Albert A. Merrill, who sized up Jerry's infatuation and became something of a Cupid. That explains how Jerry happened to hang around Caltech for two years; official records high-browing it as a special course.

That is how Jerry learned some of the secret pleasures of winds. That is where he helped build a glider that glided. That is why he has a lot of knowledge that he now uses occasionally, or at least every minute or two.

AFTER two windy years at Caltech, Jerry got a job with the Douglas Aircraft Factory in Santa Monica, where he degenerated from wind-tunnel prognosticator to stress analyst. There he wore out lead pencils, comptometers and brains with satisfying regularity. And he ran out of bad language every time he contemplated his unromantic slavery to figures and sliding rules.

About this time, Jack Northrop was chief engineer with the old Lockheed aircraft factory then located in a Hollywood barn that felt it ought to have been a motion picture studio instead. Jack rescued Jerry from the mathematic cesspool about the time the Lockheed outfit moved to Burbank.

Before Jerry had time to figure out another income tax alibi, Northrop bowed out of Lockheed as chief engineer and Jerry stepped in. He was the big shot for six years, one of which was spent in Detroit.

Jerry did his bit with Lockheed progress. He was holding the sack when Lindbergh wanted a retractable landing gear, then an innovation. Lindbergh's Lockheed Sirius eventually was equipped with its hide-away wheels and if anybody should be blamed, it is Jerry.

In dozens of ways, Jerry had a lot to do with transforming the original Lockheed into the modern Lockheed. He knows all the inside stuff which would clarify the gross weight increases from 2,800 pounds at first to 5,400 pounds at the present time. He played an important part on all the stages from the original Warner engine to the huskies of today. And through it all, a lot of folks believed Jerry never had a thought except how to improve Lockheeds, all of which was nothing but a cockeyed delusion.

JERRY VULTEE

THE MAN

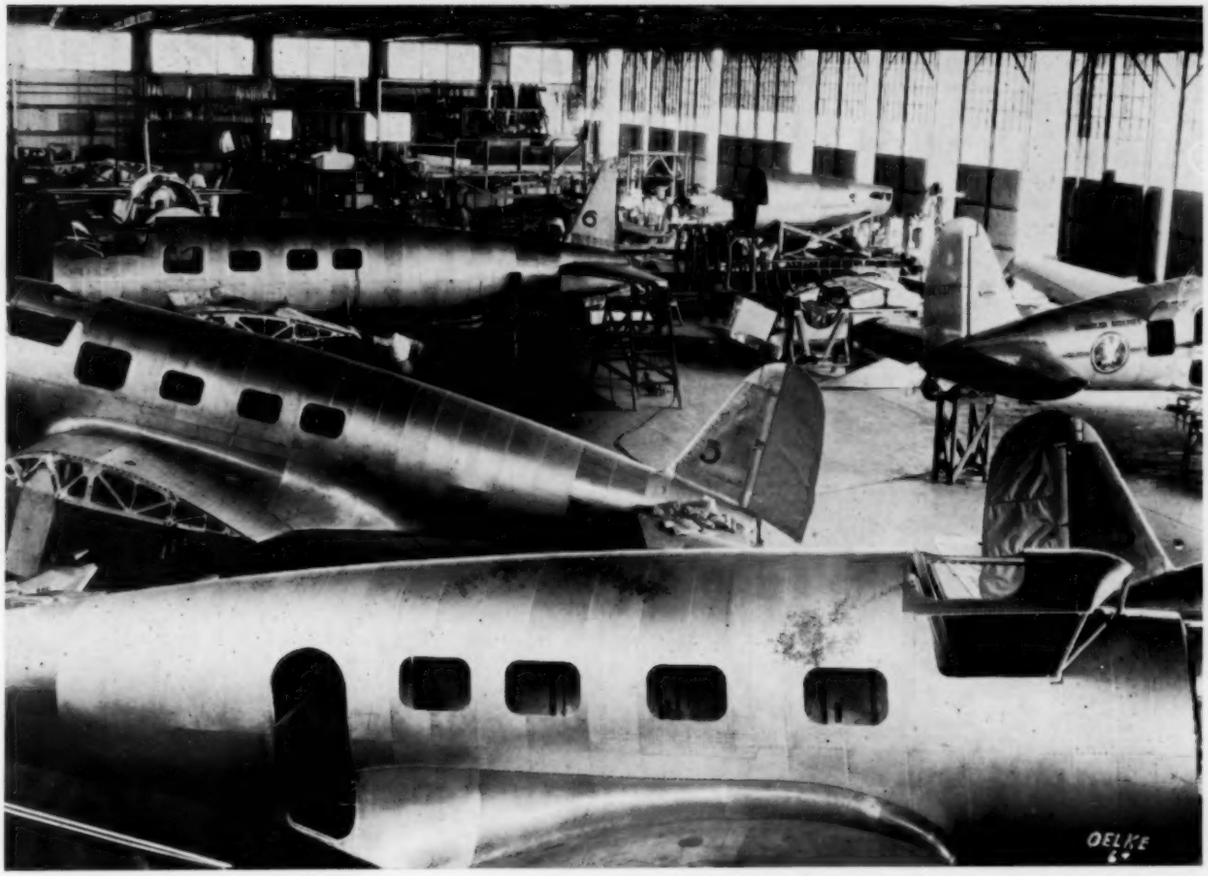
....He couldn't stay away from that Caltech wind-tunnel.

All of the time he was Lockheeding, Jerry was dreaming about a transport that would be the most efficient aircraft in its class in the world. All he had in mind was the largest, fastest, safest, most efficient and best all-around single-engined airplane ever produced.

The big idea festered until it became dangerous, then he severed his Lockheed connection and for about a year was in charge of the engineering department of the Curtiss-Wright Technical Institute for Aviation in Los Angeles. And while on this job, Jerry met E. L. Cord.

Jerry sold the best plane idea to Cord.

It was early in 1931 that Jerry commenced laying out his dream transport. It kept him plenty busy for more than a year—a year of bliss, however, as there were no promotion activities required. All Jerry had to do was



THE FACTORY
....Out of Jerry's factory came another, and another,—until a whole litter of V-1-A Transports appeared.

theorize about the transport and allow Cord to materialize about the money.

EARLY in 1932, Jerry stood in the middle of a great big vacant hanger at Grand Central Air Terminal in Glendale. He knew it had been leased as his factory. He was starting from scratch and Cord was betting he would win.

Airplane Development Corporation was painted over the front door and printed on the stationery.

It was during the spring of 1933 that the Vultee, number one, now nicknamed the V-1, first went into the air. Cord had no regrets. Jerry had no apologies. It was a disgustingly successful "first plane."

No major corrections were required and there wasn't a ghost of a chance to touch Cord for another hundred grand or so, because Cord and Jerry and everybody else just had to admit the V-1 was okay.

Skeletons began to rattle and secrets began to explode—and Jerry was forced to admit that he had been back to the Caltech wind-tunnel every so often with a cute little model of the V-1. Jerry was courtmartialed and found guilty of having made ever so many changes, corrections, improvements, etc., in the model which completely eliminated necessity for the full-sized same in the real V-1.

American Airlines, another Cord-controlled proposition, soon had the V-1 in regular service. Incidentally, it still is in service, doing all and more too than Jerry ever hoped it would when he first started dreaming about it away back in the middle ages.

CORD arranged for the American Airlines' brain department, mechanical executives, maintenance men and traffic shock-absorbers to get together with Jerry and tell him what was wrong with the V-1. That expose and a first-class argument about a world series baseball game took almost twenty minutes, after which Cord told Jerry to cut out his loafing and build another transport with all the suggested refinements incorporated. That is how the V-1-A got its start.

Building it was comparatively easy. All Jerry had to do was to hire a couple of hundred expert airplane and tool-making mechanics and have them construct machinery which would take care of the sixteen million little chores which were accomplished by hand when the V-1 was slightly more than a guilty look in Jerry's eyes. And after messing up the hangar with a lot of new-fangled machines, the V-1-A made its debut.

Out of Jerry's factory came another, and another,—until a whole litter of V-1-A transports has appeared. His gang is building more—and they could turn out six per month if they really got busy. That would mean about five hundred Jerryites working in three shifts.

The V-1-A looks like a silver-plated whale thirty-seven feet long with a couple of over-sized fins stretching out to a total width of fifty feet. Up where the mouth ought to be there is a cavity formed by a cowling containing a Wright Cyclone engine. And inside—well, the air traveler of today simply has it all over old Jonah for comfort, quietness and speed.

A Bus Line Flys

Oklahoma Transportation Company finds the airplane a solution to many problems—a factor in economy—and its president, flying 300 hours per year, finds time to direct Oklahoma City's active Aviation Club.

PATRONS of the Oklahoma Transportation Company little realize when they buy a ticket or ride between towns over the company's modern bus system that aviation plays an important role in the excellent service they receive.

Two planes, one a Waco four-place cabin and one a Waco F-2, both powered with 210 h. p. Continental engines, form an integral part of the company's elaborate equipment. The latter, the personal plane of the company's president, Moss Patterson, has a variety of uses that cover the field of executive transportation over the nation as well as over the company's scheduled bus lines, and much pleasure and enjoyment especially for hunting and fishing expeditions to Old Mexico or to his game preserve in South Texas.

MOSS PATTERSON
"... As bus operators, we do not want to make the mistake of older forms of public transportation."

Twelve hundred miles of bus line operation extending into three states comprise the territory served by the transportation company. Division points are located at Fort Smith, Arkansas, Wichita Falls, Texas, and McAlester, Shawnee, Sulphur, Ardmore, Hobart, Mangum, Lawton, Duncan and Chickasha, Oklahoma. All of these points have well improved airports, many having been built recently with CWA funds or by bond issues of the various farsighted municipalities. Contact between the executive offices in Oklahoma City and the division points is maintained with the company's two well-equipped airplanes.

"I have found the airplane invaluable in saving time and expense for inspection purposes," attests Mr. Patterson, "and for attending various group meetings which we hold throughout the territory. It has also been a great saver of time in attending national conventions held at Detroit, Cleveland, and Chicago. Especially does the airplane prove economical and actually indispensable when some of our equipment is in need or repairs at remote points on the system. Some of our bus drivers are transport pilots, and when it is not possible for me to go, I send them instead. The very nature of our business, extending as it does over Arkansas, Oklahoma and Texas, makes for the adaptability of airplanes."

One of the original reasons why the Oklahoma Transportation Company purchased its first airplane was to become familiar with various types of established transportation equipment on the market—to acquaint itself with absolute facts of operation in order that, as a transportation company, it would not make the mistake of the older forms of public transportation, which admittedly believed, not many years ago, that bus lines and air lines had little or no future. "The air lines are here to stay," Mr. Patterson believes, "because they save the most valuable thing a human being possesses: Time. Our company has had under advisement and consideration the inauguration of some short-line air lines in the not too distant future; we feel that the experience he have had in the operation of airplanes will prove invaluable to us when we start the operation of our air service."

Figures don't lie. The company has kept an accurate check on all operation costs of the two airplanes in service. The records show that the actual cost per mile

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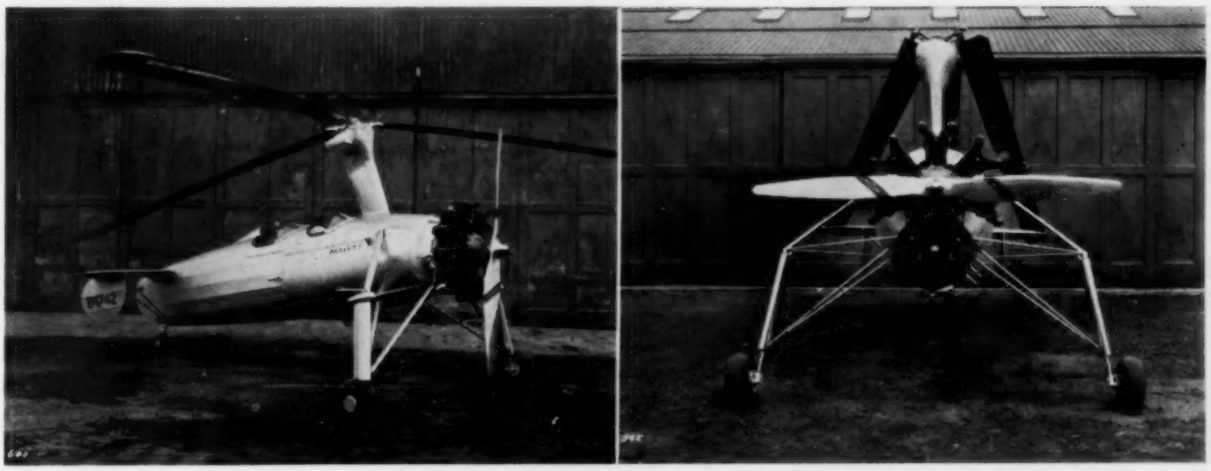
Aircraft 1934



The most recent Kellett development is entirely wingless, controlled by tilting the rotor, and can be hangared in the average space required by an automobile. Marking a new era in Giro manufacture, the KD-1 prophesies new fields of utility for this type aircraft.

Kellett Direct Control Wingless Autogiro

THE KD-1 Autogiro is a two-place, open tandem cockpit machine powered with a 225 housepower Jacobs L-4 engine.

The KD-1 differs radically from the previous conventional type of autogiros in that wings, ailerons and elevator have been entirely abolished and use of the rudder is optional. Control is maintained through inclination of the entire rotor system, which is so mounted as to pivot on a universal axis in accordance with the conventional movements of the pilot's control stick. This new system of control provides positive control of the giro at all times and under all conditions—from conditions of vertical descent and no forward speed, to the maximum speed condition.

Fuselage

The fuselage seats two persons in tandem. It is of sturdy alloy steel construction with fittings of alloy steel of generous size. The structure is of steel tubing throughout, thus eliminating the necessity of adjustment as in the case of tie rods.

Landing Gear

The landing gear is of the double fixed tripod type with the axle telescoping in the shock strut. This type provides a nearly vertical travel of the wheel which has been found necessary on aircraft landing at almost a standstill as does the KD-1. The wheels move slightly inward as they travel upward relative to the autogiro, in order to better absorb the shocks of a side landing.

The wheels are mounted on tapered roller bearings to insure long life and perfect alignment of the brake drum relative to the brake shoes.

Tail

The tail wheel is mounted in an Army type steerable tail wheel fork connected to the rudder pedals, providing positive steering. To facilitate handling on the ground the tail wheel may swivel through 360 degrees. The holding and release mechanism is purely automatic; it disconnects itself when necessary for handling on the ground and connects itself to the rudder control when taxiing is started.

The tail wheel shock strut provides extra long travel to provide the best shock absorbing qualities when landing and easier riding qualities when taxiing.

The tail group of the Direct Control Autogiro is unique in that it does not include an elevator control, this feature being unnecessary because of the control provided in the rotor. Vertical surfaces are provided of ample area to give positive directional stability. The rudder, though comparatively small, is easily sufficient to take care of changes in balance due to engine torque. The control provided by the rotor is such that the rudder control is not used during normal flying maneuvers.

Rotor

The rotor system includes three blades attached to a hub which is allowed to rotate freely on a short spindle. The spindle is mounted so that it can be tilted sideways or fore and aft by the control stick in the pilot's cockpit. It is this direct control mechanism that furnishes the longitudinal and lateral control which is as positive at zero forward speed as at top speed. This control has eliminated the necessity for a fixed wing used on the older type autogiros with its ailerons for lateral control.

The rotor blades are built around alloy steel tubes of high tensile strength and polished to a bright finish to insure accurate dimensions. The inner ends of the spars contain hydraulic dampers for controlling the position of the blades about the vertical hinge pins. The dampers are so constructed that the oil is kept in the sealed bottom of the cylinders by centrifugal force so packing is not depended upon to retain the oil.

The extension blocks connecting the blades to the hub act as universal blocks, allowing the blades to flap and oscillate freely in the needle bearings. The extension blocks also include cams and blade stops used to self-center the blades and provide positive stops to limit their motion.

The hub is machined from an alloy steel forging of exceptional ruggedness. It is mounted on a spindle by a thrust and two radial ball bearings to reduce the friction of the rotating system to an absolute minimum. The trunion bearings for controlling the hub are of the non-friction needle type providing smooth operation of the controls as well as infinite life.

The rotor system is mounted at the upper end of a large size chromemolybdenum steel tube pylon strut. The tension loads go to the lower end of the strut in order to minimize the use of fittings welded or holes drilled at the point of maximum bending stress.

Control System

All the control bearings throughout the system are of either needle bearings or ball bearings to give the maximum ease of operation and longest life with the least attention. Bungee adjustments are provided to give lateral and longitudinal balance for any load condition at any speed chosen by the pilot.

The controls are so located to give maximum comfort after long periods of flying. Control movements and forces of rudder and stick are co-ordinated to make the pilot feel at home after only a few minutes of flying. The controls for the rotor starter and brake are neatly arranged on the instrument board with the engine controls and instruments to give ready access and a neat appearance.

Power Plant

The Jacobs power plant used is a special model designed for autogiro use to improve the installation of the rotor starter and Heywood pump. While this is the standardized power plant, the Wright R-760-E or other power plant of similar horsepower can likewise be installed at reasonable additional cost. The engine mounting is cushioned to reduce the vibrations reaching the fuselage to a minimum. Although any type of propeller may be chosen, the Curtiss-Reed fixed pitch propeller is included as standard equipment. This propeller gives high speed performance equivalent to any other, and a take-off and climb performance superior to any except a controllable pitch propeller.

The engine starter is a Heywood compressed air starter which has been standard equipment on autogiros since they were first built in this country. Its extreme simplicity makes it a dependable means for engine starting.

The fuel tanks are mounted on the sides of the fuselage outside the fuselage structure. This position has been used by the Navy for their most popular observation aeroplanes and has many advantages. The tanks are of welded aluminum held to the side of the fuselage with steel straps padded with felt. The oil tank is of similar construction but is mounted inside the engine compartment.

Rotor Starter

A rotor starter unit is mounted aft of the engine including a pair of bevel gears and a clutch. Ball bearings are used throughout the design. The clutch is designed after automobile practice, using a limiting torque clutch in combination with a cone clutch.

Safety devices are incorporated to prevent damage due to a too rapid opening or closing of the engine. The clutch is controlled by a conveniently located handle in the pilot's cockpit.

Furnishing and Fixed Equipment

The pilot's and passenger's seats are shaped and located for maximum comfort. Upholstering is provided around the cockpit, designed for comfort, appearance, and durability. The fuselage cross section and cockpit cowling is designed to give maximum possible visibility for all types of flying.

The instruments are arranged on a mental board forward of the pilot in such a manner as to give the most possible information to the pilot with the least possible effort on his part.

Folding Rotor Blades

A new and important feature is the provision for folding back the three rotor blades over the tail surfaces while the machine is on the ground. With the blades in this position overall dimensions of the KD-1 Giro are 26 feet by 10 feet 3 inches by 10 feet 4 inches, greatly simplifying hangar storage..

PERFORMANCE

High Speed	125 m .p. h.
Cruising Speed	103 m. p. h.
Minimum Speed (level flight)	16 m. p. h.
Rate of Climb (sea level)	1000 ft./min.
Cruising Range	361 miles
Endurance at cruising speed	3½ hours
Take-off	60 feet
Landing Run	Nil

DIMENSIONS

Rotor Diameter	40′
Length—Blades Folded	25′ 10″
Width—Blades Folded	10′ 04″
Height—Blades Folded	10′ 03″
Wheel Tread	9′ 06″
Solidity	.045
Horizontal tail area	22 sq. ft.
Vertical tail area	12 sq. ft.

WEIGHTS

Weight empty	1352 lbs.
Pilot and Passenger	340 lbs.
Fuel—(50 gal.)	30 lbs.
Oil—(4 gal.)	30 lbs.
Equipment	30 lbs.
Weight Loaded	2052 lbs.

The Laird De Luxe Cabin Sesquiplane

THE latest Laird creation is a sesquiplane of comparatively small overall dimensions for its carrying capacity.

Fuselage

The fuselage of this new "De Luxe" model is all metal semi-monocoupe construction fabricated from aluminum alloy materials. The smooth skin or outer covering is 24ST allow riveted to elleptical shaped bulkheads which are formed from 17ST bulb "L" sections except the main bulkheads at the wing root stations which are formed of two extruded bulb "T" sections with a 17ST web riveted between them forming an "I" cross section. The skin is in segments extending from bulkhead to bulkhead and requires no special forming. Longitudinal stiffeners are added to support the skin between bulkheads.

Cabin

The main cabin section is very large and there is ample room for from four to six seats. (Seats and seating arrangement are custom built to suit the purchaser.) There is a spacious baggage compartment aft of the main cabin and ample baggage may be carried for all passengers. The cabin entrance is on the right-hand side and is located well to the rear of the wing structure. It is an easy step from the ground to the door sill. There is an emergency exit located on the left-hand side of the cabin at the center window. The windshield and the six large windows of the cabin are of Triplex non-shatterable glass. The two forward windows at the pilots' seats may be raised or lowered in true motor car fashion.

Controls

Dual wheel controls mounted on a "Y" type column and dual rudder and brake pedals are standard equipment. There is also a "hand lever type" parking brake. Wing flaps to reduce the landing speed are attached to the lower wing panels and extend for practically the entire span of the wing. They are operated by a small hand crank located at the base of the main control column. Longitudinal trim for varying loads is accomplished by the use of small tab surfaces hinged to the trailing edge of the elevators which are adjustable by means of a small hand crank located above the pilot's head.

Instruments

The instrument panel is of ample size to accommodate all the instruments now demanded in an up-to-date plane. The flight panel, which is mounted on a series of "Lord" shock absorbers, carries a Sperry horizon, directional gyro, Pioneer bank and turn indicator, climb indicator, air speed, altimeter, tachometer, and thermocouple indicator for engine cylinder temperatures. On the main section of the instrument board are mounted propeller and engine controls (except the throttle which is located on the control column), oil pressure gauge, oil temperature gauge, fuel pressure gauge, clock and fuel valves. Conventionally located on this same panel are the switches and fuse box for all electrical equipment as is the remote control unit and dial for the RCA AVR-2 radio receiver. The compass is mounted on a ledge just above the flight panel and there is a drift indicator located in the floor just ahead of the pilot's seat. Landing and navigation lights are also provided and there are two Wiley three-minute flares mounted in the fuselage just to the rear of the main cabin.

Engine Mounting

The engine mounting is of steel tubing construction and is suspended in four "Lord" shock absorbers at points of attachment to the main fuselage structure. NACA type cowling, bumped out at the cylinder rocker box locations to reduce cowl diameter, encloses the engine. By bumping out the cowling at the rocker box locations it is possible to use a cowl four inches smaller in diameter than the engine which greatly improves the pilot's angle of vision. Engine accessories include: Electric inertia starter, generator and control box, oil radiator, fuel pump and exhaust heaters for the cabin. A Hamilton standard controllable propeller completes the installation.

Wings

The upper wing panels as are the outer tips of the lower stub panels constructed with spruce "I" beam spars and reinforced plywood trussed ribs, fabric covered. The ailerons which are hinged to the upper panels only are 24ST aluminum alloy smooth skin type. The inner section of the lower wing structure between the fuselage and the lift struts is of chrome molly steel tubing. There is a large socket six inches in diameter welded into this structure at the junction of the front spar and the first drag strut member. This is to accommodate the landing gear oleo strut, the upper end of which telescopes into the socket. The entire trailing edge of the lower panels aft of the rear spar and extending across under the fuselage form the landing or wing flap. This is also made of 24ST alloy as is the covering on the inner stub panels.

Landing Gear

The landing gear is very rugged but simple in con-

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Export

Four Seasoned Executives to Direct United's New Company

THE United Aircraft Exports Corporation, which came into being during November as a result of the complete reorganization of the former United Aircraft & Transport Corporation, has taken over the business and assets of the old United Aircraft Exports, Inc. Offices are located in East Hartford, Connecticut. It is a new and distinct unit of the United Aircraft Corporation and will handle all export business for the other equipment companies of the same group. These include the Pratt & Whitney Aircraft Company, Chance Vought Corporation, Hamilton Standard Propeller Company, the United Airports of Connecticut, and the Sikorsky Aviation Corporation.

Charles W. Deeds, former Vice President of the Pratt & Whitney Aircraft Company, has been elected President of the new Export organization. J. Reed Miller, Secretary and Treasurer of the former export company, maintains that position with the new corporation. E. B. Haines and Stephen A. McClellan have been elected Assistants to the President. All four officials have long been identified with aviation, particularly in Hartford circles.

MR. DEEDS joined the Pratt & Whitney Aircraft Company shortly after it was formed and after training in several branches of the business became its Secretary and treasurer. He was later promoted to the Vice-Presidency of the company, from which position he has now resigned to take over his new duties with the Exports Corporation.

MR. MILLER was born in Pittsburgh, Pennsylvania, in 1904, and attended the University of Pittsburgh where he specialized in general business administration. He was employed by the firms of Arthur Young & Company and Lybrand, Ross Brothers & Montgomery, Public Accountants, in Pittsburgh. In 1924 he joined the forces of the Standard Steel Propeller Company as an auditor, and following the formation of the Standard Steel Propeller Corporation in 1929, he was made its Treasurer, in which capacity he remained following the consolidation of this corporation and the Hamilton Metal Propeller Company in 1929. In 1931 the offices and works of the Hamilton Standard Propeller Company were moved to Hartford and at that time, Mr. Miller came to Hartford to make his home. In the fall of 1932 he resigned his position with the Propeller company to go to New York, where he was elected Assistant Secretary and Treasurer of the United Aircraft Exports, Incorporated. Later on he was made Secretary and Treasurer of the same company and now assumes similar duties with the newly formed Export organization.

MR. HAINES was born in Middletown, Connecticut, in 1892. He attended the public schools in Middletown and later received his higher education at Wesleyan University in Middletown, Worcester Polytechnic Institute in Worcester, Massachusetts, and the Massachusetts Institute of Technology in Boston. After leaving college Mr. Haines was employed for some time in the drafting department of the Pratt & Whitney Company and later joined forces with the Hartford Steam Boiler & Inspection Company. At the beginning of the war he enlisted in the Coast Artillery as a master gunner and was sent to France, where he saw active service at Muse, Argonne and Mount Faucon. After a short period of study he was promoted to the rank of lieutenant and remained in France for some time following the war with the Army of Occu-

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The four officials of the new United Aircraft Exports Corporation are veterans in Hartford aviation circles. Left to Right: Charles W. Deeds, President; J. Reed Miller, Secretary and Treasurer; Stephen A. McClellan and E. B. Haines, Assistants to the President

"Off Course"

Vignettes of the Month

Pursuit

HUGH ZIMMERMAN, Oklahoma pilot, zoomed down over an automobile which he thought to be his wife's. Said Zimmerman: "I thought I would have some fun with her, but when I got close I saw guns pointed at me." Bandits had just completed a "job" at the First National Bank at Okeene.

"I hurried to Omega, sat down and called the Kingfisher County Sheriff from a cotton gin," he continued. "I went back up and pretty soon I spotted the bandit car by its yellow wheels. It had doubled back. Soon I saw the sheriff's car coming and then I saw a coupe between the sheriff and the bandits. Fearing somebody might get hurt if they started firing, I sat down in front of the coupe and stopped it. When I got back in the air I found the bandit car had gone another mile west, a mile south and was doubling back. I landed again and told Sheriff Ed Martin, who stayed on the trail."

Zimmerman ran out of gas, landed in an alfalfa field and borrowed two gallons from farmers baling hay. Darkness settled down and prevented his sighting the quarry again.

But he worried the bandits for three hours, landing his plane five times in pastures to put wandering posses on the right trail before he ran out of gasoline.

Blind

There are forty-seven basic training planes, Douglas BT-2Bs, used for blind flying training at Randolph Field. None of the ships is equipped with radio and only one ship is equipped with an artificial horizon and directional gyro.

Tell This to Congress

Captain P. G. Taylor, navigator for Sir Charles Kingsford-Smith on his recent transpacific flight, is an air mail flier on European lines. While crossing the American continent overnight via TWA he stated:

"I have learned a great deal about airplanes and the most modern methods of flying them in the few hours it took me to fly from Los Angeles to New York. Your Douglas is a marvelously fast and comfortable ship. The Sperry automatic pilot is a most valuable asset to the plane and pilots, and those Cyclone motors are beautiful pieces of aeronautic machinery."

"I am quite frank to admit that America is at least ten years ahead of European countries in commercial aviation."

Undercarriage

The United States Navy has cautioned pilots not to fly under the airship Macon. The Macon is equipped with a subcloud observation car, or "periscope," which may be suspended on a small wire cable as much as 3,000 feet below the airship.

Did You Know That—

On the record flight for greatest load, 16,608 pounds of payload was carried by the Sikorsky S-42, exclusive of crew, fuel, etc.?

There are 2,800 square feet of sheet metal covering the wing, 2,462 square feet covering the hull—enough to cover three city lots?

The soundproofing is made of rubberized, sterilized, vermin-proofed animal hair?

Over one and a quarter miles of control cables and one mile of electric wiring are used?

One wing tip float has sufficient flotation to make a comfortable four-place outboard motor boat?

There are almost a million and a half detail parts, excluding engines and propellers?

Approximately 600 gallons of paint is used to paint one S-42 including primer, lacquer, bituminous paint and dope—enough paint to give sixty average size cottages one coat of paint each?

Three hundred seventy-five photographs were taken of the progressive construction and the finished airplane?

Twelve water testing hulls were constructed during the boat hull design?

Forty-six complete wind tunnel reports were made during the progress of the aerodynamic analysis?

There are 1,400 blueprints to cover one complete S-42, not including 600 research and experimental drawings; finished design data consists of 1,855 closely typed pages?

Eight world records were broken in one flight, and ten world records are now held by the S-42?

Shortage

There is such a shortage of army transport airplanes at government flying fields near San Antonio that Brooks Field had to send its football team to Fort Crockett in about twenty airplanes recently.

Duncan Field has three cargo planes and all other fields have one each. Practically all of the shipping of supplies for use within the service is handled with these transports.

New Deal

When J. F. T. O'Connor, Comptroller of Currency for the United States Government, arrived at Grand Central Air Terminal in Glendale, California, via TWA for a short visit in Los Angeles, his home city, he gave the colored porter a shiny new twenty-five cent piece, saying, "That is one I just had made."

"Thank you, sir," said the porter. "You certainly have it all over that Mr. Rockefeller. He's made a lot of money, too, but he passes out new dimes—and you give me a quarter. Now maybe my old woman will believe me when I tell her about you Democrats."

The Hamilton Standard "Constant Speed" Controllable Pitch Propeller

THE limitation of controllable pitch propellers to two-pitch positions, the low pitch position for take-off and climb, and a high pitch position for cruising and high speed, has recently been removed by the development of a "constant speed" controllable in which an infinite number of pitch positions are available; the optimum position being automatically selected for the pilot for each and every flight condition. Details of construction of the control unit or its manner of functioning have not as yet been made available by its manufacturer, the Hamilton Standard Propeller Company. However, the results accomplished through its use were released in November.

Its automatic selection of blade pitch is of the utmost importance since the continuous selecting of the optimum pitch setting by manual control would be a task demanding such a large portion of the pilot's attention that it would be impracticable.

From another point of view, the "constant speed" control acts as a governor, holding the engine revolutions to whatever operating speed the pilot selects, irrespective of load variations. Any tendency of the engine to either increase or decrease its speed, due to such load variations, is immediately counteracted by the automatic changing of the blade pitch in whichever direction is necessary to bring the engine speed back to the selected operating speed.

Following the widely-used analogy of the automobile gear shift, the Hamilton Standard constant speed control provides for the airplane the equivalent of an infinite number of automatically selected gear ratios in an automobile. An automatic gear selection in an automobile would insure the most efficient starting of the automobile, irrespective of load or whether the car was on a steep hill; in traffic it would provide the quickest acceleration. Along the open road it would provide automatically for a change to the proper gear ratio for each downhill, level, or uphill section, and for sandy or muddy sections in which the going was much more severe.

AT TAKE-OFF the pilot, of course, desires to utilize all of the power which the engine manufacturer will permit to be taken from the engine at this time. The pilot would therefore set his engine-speed control at the beginning of take-off for the maximum allowable revolutions and would open his throttle until the maximum permissible manifold pressure is reached. The automatic feature will hold the engine speed to the selected full-power r. p. m., irrespective of the change in the forward speed of the airplane as it varies from zero miles an hour at the start of the take-off to the air speed selected for the most efficient climb.

When the cruising altitude is reached, the pilot would reduce the setting of his engine speed control to the approved cruising r. p. m. and also adjust his throttle to the approved cruising manifold pressure for that altitude. If this cruising altitude is changed, the only adjustment required is a change in throttle setting to obtain the manifold pressure approved for the new altitude.

In accordance with the technique which is coming into favor among transport operators with the more common use of highly supercharged engines, much of the distance between terminal points will be covered at above 10,000 feet altitude for maximum cruising efficiency. Toward the end of the flight the pilot utilizes the altitude to increase the forward speed of the airplane by placing the latter in a gentle glide, losing approximately 400 to 500 feet of altitude per minute. Without adjustment the engine would over-rev under these conditions, but the automatic pitch control feature maintains the engine speed constant and permits a very considerable gain in forward air speed without additional strain on the engine.

IN MAKING a landing the throttle is, of course, nearly closed but the engines continue to turn at nearly full speed, due to the fact that the blade pitch angles have been continuously reduced by the automatic control. A very decided advantage is thereby made available in that if it should be necessary to "gun" the airplane into a landing, or to take off again due to some development on the ground, the propeller blades will be in that position which permits the full power of the engine to be made available immediately.

It has been pointed out that the constant speed control should also prove of great value in military airplanes since it would make full power available to the pilot under all conditions of aerial combat in the case of fighting planes, and would reduce the harmful effects of over-revving incident to diving maneuvers. In military formation flying, pilots would speed up or slow down their airplanes through movement of the throttle, as at present. More or less power would be taken from the engine, as evidenced by the rise or fall in manifold pressure, although the engine speed would, of course, remain constant.

SUCCESSFUL flight tests have been made with airplanes powered with engines varying from 300 horsepower (direct drive) to 725 horsepower (geared) with both two and three-bladed propellers. The precision of the Hamilton Standard control is such that no "hunting" is noted during the normal cruising conditions, and the control responds readily to sudden changes in the attitude of the airplane or to other changes in operating conditions such as sudden opening or closing of the engine throttle.

The most exacting test of this precision is, of course, the degree to which it is possible to synchronize the motors of a multi-motored airplane. These controls have recently been demonstrated to Army and Navy officials and to aircraft manufacturers as installed on one of the new Boeing 247-D airplanes equipped with the latest type of geared H Wasp engines with three-bladed Hamilton Standard controllables. Satisfactory

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WASHINGTON

P. T. NORTON, JR.

Transatlantic

THAT old master of the Zeppelins, Capt. Hugo von Eckener, in testifying before the Federal Aviation Commission recently, seriously proposed to add the United States as a terminal for his transatlantic Zeppelin service from Friedrichshafen. His idea was that such a service is now commercially feasible; that it would be operated in addition to his present service to South America; that a brand new Zeppelin would be put into use for the U. S. service; that he proposed two transatlantic crossings monthly; that the fare should or rather would be around $300 per passenger per crossing; that in addition, a substantial amount of air mail and air express could be transported; and, that he felt that Washington, Lakehurst or Miami might well serve as the United States terminal.

Transatlantic air service to Europe thus approaches reality. The venerable Captain was undoubtedly sincere in his proposals, and rumor has it that the Navy Department has offered him the use of the hangar at Lakehurst should he decide upon that spot as his American terminal. It is our understanding that the west-east crossing would require about forty hours, while the return east-west trip would require about fifty-five hours.

Prowess

THE recent record-making transcontinental flight and still more recent round trip New York-Florida flight of Captain Edward Rickenbacker coupled with Sir Charles Kingsford-Smith's recent crossing of the Pacific are helpful indeed in appraising the "State of the Union" in American aviation—using as a basis what we are prone to term "performance." It should be pointed out that Sir Charles and Captain Edward both flew American-made planes.

These flights are a source of fresh information and inspiration counteracting the dismal picture presented in recent Congressional history. The use of an American plane for the transpacific crossing is not without significance. The successful transpacific crossing is of high significance from a military standpoint. Far-away powers are now our neighbors, aeronautically speaking. From a commercial standpoint, the flight blasts the criticism that the Postmaster General who envisions air mail to the Orient is a day dreamer. Since this is not the first successful crossing, we may be justified in concluding that scheduled flight is not impossible. Arriving two hours ahead of time gives rise to the belief that the time consumption element can be consistently whittled away. When this feat is duplicated in a "flying boat" type airship instead of a land plane, we may then conclude that the trip can be made a commercially profitable undertaking. The element of risk in flying a land plane on such a journey is not so important from a military standpoint, but there are few hardy souls at this time who would risk such a "death-defying" stunt trip on a civil commercial venture.

One thing sure is that Rickenbacker's transcontinental trips further establish America's supermacy in the transport field.

So while everything may not be in apple-pie order as far as our domestic aviation situation is concerned at this time, we have the knowledge of this supremacy in achievement to use as a foundation in erecting our new temple of aviation. We must not forget those pioneers of aviation who risked life and fortune to make American aviation success possible. We shed no tears for those high-pressured ones who sought to profit unreasonably from the public's lack of basic information concerning an infant industry.

Our American-built planes are triumphs of engineering and the envy of the civilized world.

We nourish the hope that our American aviation system can be set aright during the first session of the 74th Congress. The uncertainty of the present is an impediment—the presence of which cannot be denied.

Tribute to Wright

December 17 has been officially designated as National Aviation Day, commemorating the thirty-first anniversary of flight. On December 17, 1903, at 10:30 a. m., a power-driven airplane rose off the ground under its own power with Orville Wright at the controls. For twelve seconds it maintained flight over the sand dunes of Kitty Hawk, North Carolina. Now, as an unprecedented tribute to Wright, Federal and private aeronautical agencies plan a day of observance of that memorable date and occasion.

Arrangements are being made with airport managers, Army and Navy fields, air stations and owners and operators of aircraft to place all craft on display

for public inspection. It has been planned to have every available commercial, private, Army, Navy, Marine Corps, National Guard and Coast Guard airplane in the United States take to the air and fly over their respective communities at 10:30 a. m., December 17.

Eugene L. Vidal and Elliott Roosevelt are chairman and vice chairman, respectively, of the National Aviation Day Committee. Organizations which have given their support to the project, in addition to the Federal agencies identified with aviation, include the Aeronautical Chamber of Commerce, the Independent Aviation Operators, the N. A. A., the National Association of State Aviation Officials, the Chamber of Commerce of the United States, and the Junior Birdmen of America.

It is expected that the entire nation will join every phase of our national aviation in tribute to Wright. Important meetings will be held, many addresses, direct and by radio, will be made by persons prominent nationally and locally on the progress that has followed the flight at Kitty Hawk during the past thirty-one years, as well as the outlook for the future of our national aviation development.

Important Documents for Airmen

THE Bureau of Air Commerce is to be commended for its splendid preparation of Aeronautics Bulletin No. 26 entitled "Design Information for Aircraft," dated October 1, 1934, and released the latter part of November. The Bulletin is painstakingly prepared with substantially complete treatment of technical engineering details. The Bulletin is on high quality paper and has holes thoughtfully provided for insertion in a loose-leaf type volume. It should prove useful to highly trained technicians as well as providing inspiration for fledgling designers.

Of essential interest also is Aeronautics Bulletin No. 7-E. This bulletin contains in mimeograph form the "Air Commerce Regulations Governing Scheduled Operation of Interstate Air Line Services"—(Effective as amended October 1, 1934—mimeographed November, 1934.)*

We earnestly advise all interested or affected parties to secure copies by writing the Bureau of Air Commerce direct. We regret lack of space to present them here.

Giro Visits Washington

BLASE Washington was all agog recently when it beheld soaring aloft over the Monumental City a queer looking machine resembling the prehistoric Pterodactyl, but minus the wings. Rotating overhead were four big blades, but their speed made them almost imperceptible. To the laymen who did not know what was taking place, it seemed as though a wingless fuselage was floating through the breeze. It immediately became affectionately known as a "Whatzat?"

It was the first wingless plane flying on trial from the Army War College, with Pilot James G. Ray at the controls. We suspect that said pilot would not be unwilling to sell a few of his "Whatzats" for his firm to the Army. At any rate the officers, U. S. A., saw it and marvelled. Its performance was almost unbelievable. While capable of traveling straightaway at about 105 miles per hour, it has the added facility of going vertically up and down almost at will, merely by adjusting the pitch of the four rotors. It is so compact that it can be parked without difficulty in a fair-sized garage and its amazing landing ability prophecies that it will be able to land in the alleys beside the garages and avoid the street traffic. Who knows but what this "jaloppy" may eventually turn out to be the coveted "flivver plane."

Esteemed Eugene Vidal, Director of Air Commerce, enthusiastic about the whole business, exclaimed:

"This is one of the most remarkable demonstrations I have ever seen. This ship is both practical and cheap. It (the ship) may be revolutionary."

Past President Bingham Blasts

APPOINTMENT of junior cabinet officers to promote close co-operation between aviation and other activities of the War, Navy and Commerce Departments was recently urged before the Federal Aviation Commission by former Senator Hiram Bingham, past president of the National Aeronautic Association. Although it would be entirely difficult to term him a "New Dealer," yet he advocated "new and adequate legislation" for a forward-looking aviation program during the next few years.

"In the junior cabinet it seems to me there is great need for experts to correspond with other under-secretaries in our own and the British Cabinet. I believe American aviation has suffered greatly because these three posts have not been fiilled. . . .

"Since there are no high officials in the Navy Department devoted to aviation in the same way that high officials are devoted to navigation, we find that the Navy has been taking backward steps rather than going forward. . . ."

Placing blame for the Akron disaster squarely on the Navy Department, he continued:

"The Navy blindly and stupidly placed in command of the largest rigid dirigible in the world a gallant officer who had not had one year's experience in command of any rigid dirigible. . . ."

Terminal

IT HAS been learned that Sir Charles Kingsford-Smith will take off on another of his trail-blazing flights in the not far distant future.

Simultaneously, it was disclosed that Juan T. Trippe, president of the Pan-American Airways, had plans for a commercial air transport service to the Orient—plans that had reached such a point that a California terminal for the service was sought to be selected.

The famous Sir Charles' choice of a point of departure for his proposed flight, then, it would seem, should have a decisive bearing on the location of the terminal.

*See also Bulletin No. 7-A entitled "Airworthiness Requirements for Aircraft."

"Not Too Technical"

Cowlings

By George Carroll

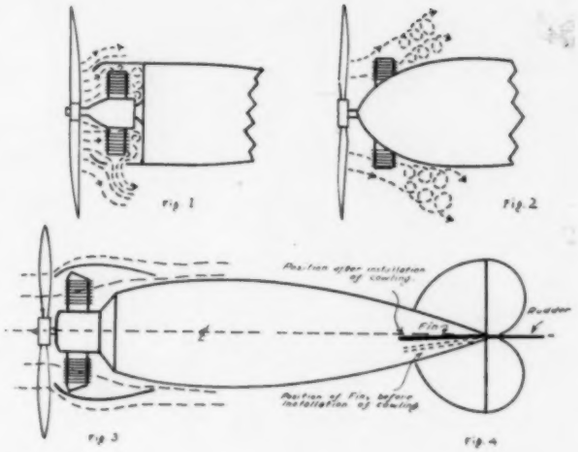
THE extensive usage of the radial type motor in present-day aircraft brings to our attention the importance of proper engine cowling for this type motor and at the same time, commands an interest in the past and present development of cowlings, especially regarding the cowling's function and its contribution to aerodynamic efficiency.

We have seen how absolute drag is attendant to the radial type motor in flight, since the large frontal area and the irregularity of the mass of cylinders cause a disruption of the airflow which lessens the flight efficiency of the airplane. And it is evident that for best flight results the drag thus produced must be eliminated as much as possible. Developments towards this end have been progressing since the early days of the War, when the radial engine was the old rotary type.

The first cowlings were placed on these old rotary motors at the time of the War in order to conquer the problem of the waste oil and grease, which was thrown off by the whirling motors. As illustrated in Figure 1, the air entered the front of the cowling, whirled around with the engine, and passed out through an opening in the bottom of the cowling, thereby furnishing a practical exit for waste grease and oil that otherwise presented a disagreeable condition. It is readily evident that the cowling placed about the whirling motor, would, however, have the same aerodynamic principles involved as in the case of the ring cowling illustrated in Figure 3; the air being forced out of the opening in the early type is comparable to the action produced by application of the cowling of Figure 3.

And it was soon discovered in the early days of the War that the addition of the cowling, then known as the "casserole," resulted in better flight performance, especially in the matter of increased speed. So we find the application of the same aerodynamic principles involved in the case of the modern type of ring cowling as in the case of the "casserole." The drag produced by the motor's large frontal area is considerably reduced.

In Figure 2 we see how the disturbance set up by the air in contact with the frontal area of the uncowled motor is of such considerable extent that an appreciable amount of drag is produced. In fact, vortices set up behind each individual cylinder grow larger as they extend beyond the motor, and finally work their retarding effect on the fuselage or engine nacelle. But in Figure 3 as pointed out above, the air is forced into a steady, more or less constant flow with a minimum amount of vortex, minimizing the retarding effect on the body of the airplane. The cowling therefore permits the fuselage or nacelle to act as a streamlined body which we have noticed in our previous discussions to be so necessary for aerodynamic efficiency. The air flows freely and smoothly around the other portions of the airplane which have also been designed so as to lessen drag.



It should be pointed out that early types of cowlings presented a serious problem in their adaptation to air-cooled motors since that type motor naturally undergoes considerable heat and the cowling had a tendency to increase the already great temperatures of the engines. This condition was overcome by the development and application of baffles or air deflectors which are installed in such a manner that the air is forced to flow around the cylinder instead of between, thus eliminating the region of heated air that would accumulate directly behind the cylinder.

In Figure 4 we find illustrated further proof of the advantageous use of cowling by a study of its effect on various portions of the tail surfaces, and by an observation of the plane's flight characteristics before and after cowling installation. In many cases it is noticed that the vertical fin must be moved nearer a neutral position or closer to the center line of the fuselage. The addition of the cowling effects smoother airflow and compensation must be made by moving the fin closer in toward the neutral position, at the same time eliminating a certain amount of drag. Before installation of the cowling, the position of the vertical fin is illustrated by the dotted line. After installation it is illustrated that the fin has been moved closer to the center line of the fuselage, thus compensating for the smooth flow of air brought about by the addition of cowling. Likewise it has been found that the stabilizer must often be readjusted towards a more neutral position for best results after installation of the cowling, a condition most noticeable in the case of

Left: Conventional type of ring or N. A. C. A. Cowling.

Right: One of the latest developments in cowling for radial type motors—another type of N. A. C. A. cowling with openings in front of cylinders.

high-wing monoplanes when the stabilizer must be moved effecting a nose-over position, thereby compensating for the drag produced by an uncowled motor.

In summary, it is therefore evident that cowling for radial type motors is not purely a laboratory development of recent years but that it dates back to the time of the World War when the old grease-slinging rotary type motors were utilized. After the War the rotary motor was abandoned and in-line motors were used almost entirely. Consequently several years elapsed before the development of the air-cooled radial motor of the last few years when it became necessary to adapt the ring type cowling for aerodynamic efficiency and increased performance.

Constant Speed Controllable

(Continued from Page 16)

synchronization was obtained through the use of the selective feature of the constant speed control unit, and this synchronization was not disturbed by change of altitude, maneuvering the airplane, or wide variations in throttle settings. This results in a definite advantage in the formation flying of multi-motored airplanes, since no change in engine synchronization is brought about through the increase or decrease of airplane speed by manipulation of the throttle.

IT IS anticipated that the constant speed control will be of a great deal of benefit in reducing the amount of vibration present in the airplane under certain conditions of flight.

Almost every one has had the experience of driving a car at certain speeds where the vibration is quite noticeable and they would usually avoid these speeds in driving for any length of time. The same sort of thing is present in the airplane except that the vibrations are much more severe on account of the very light structure and the extremely powerful engines employed. With the constant speed control, it will be possible to set the propeller speed for the smoothest operating conditions and this speed will be automatically maintained by the control regardless of the conditions of flight.

Since practically all flying with this new unit will be done at two or three very definite engine speeds rather than over a whole range of engine speeds, it will be possible for the airplane and engine designers to concentrate on these particular speeds and obtain the smoothest possible operation which might not be possible over a whole range of engine speeds.

The constant speed control unit in its present form only adds four or five pounds to propeller-engine weight and the control could be added to all existing Hamilton Standard two-pitch position propellers as a field modification. Since the propeller itself is unchanged, there is no flight hazard introduced through the addition of the "constant speed" control.

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Bus Line Flys

(Continued from Page 10)

is a few mills under ten cents. This figure includes pilot hire, insurance, depreciation, gasoline, oil, maintenance, and hangar rent. "I fly a little more than three hundred hours per year," the president states, "and the convenience and saving in time each month has definitely justified the original investment in the equipment."

To many, it may appear bizarre to find one form of public transportation augmenting its peculiar services with another form; and yet in this case the complete harmony between the two forms clearly stands out. The experience of the Oklahoma Transportation Company with aviation is indeed a revelation; but, above all, it is a monument to foresight, good business principle, and expediency in business methods in a rapidly changing world that vigorously demands service when the cold, hard cash is thrown on the counter. That is why airplanes are being used twelve months of the year in the business of an Oklahoma bus line.

News Briefs

Notes From the Industry at Large

Coordinating Committee Formed

The Federal Aviation Commission was notified on November 9 of the formation of a Joint Aviation Coordinating Committee by the four leading aeronautical organizations of the country for the purpose of promoting the interests of civil aviation in the United States.

Composed of eight members, the new co-ordinating committee will be made up of representatives of the four sponsoring groups, including the Aeronautical Chamber of Commerce of America, the Independent Aviation Operators of the United States, the National Aeronautic Association, and the National Association of State Aviation Officials.

In a communication to Chairman Clark Howell, of the commission, announcing formation of the committee, officials of the four national aeronautical organizations joined in a new recommendation for the establishment of a permanent federal aviation commission. Calling attention to previous testimony before the commission of individual representatives of the four organizations in favor of a permanent federal air commission, the letter to Chairman Howell said, in part:

"Testimony of the representatives of these four organizations before the Federal Aviation Commission was practically unanimous in favor of the proposal to recommend the formation of a permanent Federal Aviation Commission, which would have complete control of all phases of civil aeronautics. Consequently, we should like at this time to invite the attention of your honorable body to this unanimity of opinion on this matter and, particularly, to urge the careful consideration of the Federal Aviation Commission of the merits of this proposal."

Collins with Lambert

Of special interest to a wide circle of friends throughout the Middle West and Southwest, is the appointment of Mr. L. H. Collins as sales representative of the Lambert Aircraft Corporation of Robertson, Missouri. Mr. Collins started activity in his new capacity November 8 and will center his operations in the Texas, Oklahoma and Louisiana area during the winter months, according to John B. Molitor, sales manager of the company.

For the past fifteen months Collins has been connected with the Aeronautical Corporation of America in a similar capacity, working in the Great Lakes and Southwest territory.

Graduated from the University of the South and the Harvard Graduate School of Business Administration, Mr. Collins' interest in flying dates to 1928 when he realized the practical use of aircraft in connection with his duties as Vice President of the Home Accident Insurance Company of Little Rock. He was probably one of the first insurance field men to use an airplane extensively, having traveled also for the Central Surety & Insurance Corporation of Kansas City, Missouri, during 1931 as production manager of the Bonding Department.

Collins has flown sixteen hundred hours, and holds transport license No. 7709. He is now flying a De Luxe Lambert 90 Monocoupe of the new type over his sales area.

Nine Month's Production

Airplanes manufactured in the United States during the first nine months of 1934 totaled 1,285, of which 673 were for domestic civil use, according to a survey made public recently by the Bureau of Air Commerce, Department of Commerce. This represented a total increase of 220 aircraft over the corresponding period in 1933.

The 673 airplanes built for civil use in this country during the period January 1 to September 30 included 518 monoplanes and 155 biplanes. Of the monoplanes, 213 were open cockpit and 305 were cabin types. The biplanes included 45 open cockpit and 110 cabin craft.

The total number of aircraft produced during the nine months' period was divided as follows: 673 for domestic civil use, 306 for military delivery, and 306 for delivery to purchasers in foreign countries.

In 1933 during the first nine months, 1,065 aircraft were produced. These included 552 for domestic civil use, 254 for military delivery, and 259 for export. Among the 552 airplanes manufactured for domestic civil use during January-September, 1933, were 410 monoplanes and 135 biplanes.

The report of aircraft production is based on a record of Department of Commerce licenses, identification marks issued for unlicensed airplanes, and reports as to military and export production for aircraft manufactured between January 1 and September 30. There is a possibility, however, that there still may be a few aircraft manufactured within that period for which licenses or identification marke have not yet been sought.

Readjustment Plan Amended

The readjustment plan effecting holders of the five-year six per cent convertible notes of the Glenn L. Martin Company, aircraft manufacturers of Baltimore, previously presented, has been amended. It was pointed out to the holders of these notes that the National Aviation Corporation holding $505,000 of the outstanding notes suggested certain modifications and as a result of conferences with them and the Baltimore Trust Company, holding over $1,000,000 of the notes, the plan has been modified in respect to the stock purchase option. Both National Aviation and the Balti-

more Trust have agreed to deposit their notes under the amended plan, it was stated.

It is provided under the amended plan that the new notes shall be convertible at a flat price of $12 per share during the entire life of the notes and that the plan is to become operative when the company, with the prior written consent of the Baltimore Trust Company and National Aviation Corporation shall declare the plan operative by notice mailed to depositors.

The original agreement whereby the Baltimore Trust Company became a party to the plan with certain note purchase options has been cancelled and a new agreement entered into whereby the trust company deposits its notes without granting such options. In addition, the note holders are to have further representation on the board of directors of the company and on an executive committee.

Ryan Behind in Orders

The entire first group of the new Ryan S-T low-wing monoplanes has been sold in advance of production, according to Earl D. Prudden, Vice President of the Ryan Aeronautical Company, manufacturers. While every effort is being made at the San Diego factory to meet the demand for the S-T Super Sportster, it is expected that production schedules will not be able to meet delivery dates on back orders until the end of the year.

Walter Locke, who has had extensive experience in the production and purchasing departments with Pitcairn Autogiro, Waco Aircraft and the original Ryan Aircraft Company, has been appointed purchasing agent as a result of the company's recent expansion in connection with the production of its new monoplane. Verne Murdock, who recently completed his transport course at the Ryan School of Aeronautics, has also been added to the production department of the Ryan Company.

Sky Ads Abroad

The popularity of Sky Ads in foreign countries is evidenced by the recent arrangement between the Kellett Autogiro Corporation, Sky Ads Division, with several South American firms to act as exclusive licensees and representatives for the Sky Ads. Companies in Brazil, Cuba, Argentine, Paraguay, Uruguay and Puerto Rico have taken over distribution of the Kellett product.

Security Sales

W. B. Kinner, President of the Security National Aircraft Corporation, Van Nuys, California, announced in November that the company had completed and delivered its fifteenth Security Airster and was preparing to start production of twenty-five additional two-place, low-wing monoplanes.

A new export market for American-built sport and training planes was opened up last month when the Security National Company appointed R. Hesselberg-Meyer A/S, leading automobile distributer of Oslo, Norway, as exclusive sales agent for Security Airsters in the Scandinavian countries. The new distributor has purchased a special Airster for use as a sales demonstrator.

Because of the scarcity of suitable landing fields in the Scandinavian countries, the new Airster for Norway is being equipped with a convertible landing gear for use with pontoons and skis as well as wheels. Floats are being installed by the Edo Aircraft Corporation, College Point, New York, before shipment to Norway. Skis will be installed after delivery in Europe.

In addition to building the economical Security Airster monoplanes, the company is beginning construction work on a new type of 100-horsepower, air-cooled engine for use in sport and training airplanes, according to Kinner. Designed for economy of operation and ease of maintenance, the new Security engine will be built primarily for use in the folding-wing Airster, but will be offered to other airplane manufacturers when it is under quantity production.

The new engine has been designed by Kinner, pioneer builder of airplanes and engines, and a veteran pilot. To date, Kinner has developed and successfully marketed three different types of airplane engines.

Accurate Meteorology

The accuracy with which weather conditions are forecast for pilots flying the transcontinental route of TWA, Inc., between Los Angeles and New York, is indicated in a report of the TWA meteorological department.

For the month of September, the report reveals, the twelve TWA meteorologists maintained an average accuracy of 98.3 per cent for the forecasts made for the passenger and mail flights. A total of 1,640 forecasts, or more than fifty each day, were made during the month. The consistency of the reports is further indicated by the slight variance between the individual meteorologists, the highest individual accuracy being 99.7 and the lowest 96.4 per cent.

The accuracy statistics were obtained from grades given the forecasts by the pilots at the completion of each flight.

The accuracy record was made possible, according to the TWA meteorological department, by the adoption of the "Polar Front" or "air mass analysis" method of forecasting. The air mass analysis method, which has been in use by TWA for a year or more, is based upon the movement of specific air masses, each with its own peculiar characteristics and their reactions on other air masses. The older method was based largely upon the movements of areas of high and low barometric pressure.

23 Million Mile Pilots

With flying completed in November several more of United Air Lines' pilots entered the coveted million-mile circle and the company now has twenty-three pilots on its New York-Chicago-San Francisco and Seattle-San Diego routes each of whom has had 1,000,000 miles of flying experience, with several approaching the million and a quarter mile mark.

United Air Lines is claiming a record of passenger miles for the Boeing 247 twin-engined transports, stating that more passengers have been carried by these Boeings tran any other type of plane in history, as they have had a record of 120,000,000 passenger miles since they have been placed in operation.

Depression Absent

The 1935 Stinson Reliant shown above, was delivered recently to Major C. C. Moseley, President of Aircraft Industries, Inc., of Los Angeles, distributor for Stinson and Lycoming products. The 600 figure includes only the four-place cabin planes manufactured during depression years.

Sir Charles' Altair

"It is great to be home again," enthusiastically exclaimed Sir Charles as he brought his "Lady Southern Cross" back to the Lockheed factory in Burbank following the historic transpacific flight from Brisbane. "This is a sturdy plane—the best airplane in the world."

With the exception of the special long-distance equipment Sir Charles' Lockheed is a standard low-wing Altair powered with a new type of Pratt & Whitney Wasp SE engine supercharged to deliver 500 horsepower at 11,000 feet.

The plane is a direct development from the Lockheed Sirius in which Colonel Charles and Ann Lindbergh flew to the Orient in 1931 and surveyed the proposed transatlantic air routes in 1933. Improvements in the Altair over the original Sirius include a completely retractable landing gear such as employed on the standard Lockheed Orion, split-type trailing edge wing flaps, and a supercharged engine equipped with a Hamilton Standard controllable pitch propeller.

On the transpacific flight, the Altair carried 630 gallons of fuel, which brought the gross weight up to 8,250 pounds, as compared with 5,800 pounds for which the standard Altair and Orion models are licensed. Gasoline was carried in large fuselage tanks, two forty-gallon tanks in the wing, and a twenty-five-gallon tank under the front seat.

To conserve fuel, Sir Charles kept the Wasp throttled down to 1,550 r. p. m., which gave the Altair an average air speed of 146 m. p. h., as compared with the plane's proven 213 m. p. h. cruising speed at 17,000 feet. At the end of the long 3,197-mile flight from the Fiji Islands, the Altair's tanks still contained fifty gallons of fuel when it landed at Honolulu.

Frisco Hears Turner

A long-distance radio communication between a transport plane and a ground station was reported by United Air Lines, following receipt of word from Colonel Roscoe Turner, flying a Boeing transport in the London-Melbourne Race, that his radio operator talked with San Francisco when approaching Melbourne, Australia, on the opposite side of the globe. In earlier tests from the big transport, Turner, when flying between New York and Washington, had talked with the Argentine.

Brock's Record

In November, friends of Dr. John D. Brock of Kansas City received an air mail envelope bearing an inscribed shield announcing the celebration on November 15 of his one thousand, eight hundred and twenty-sixth consecutive daily flight—a flight a day for five years.

After a mass flight over portions of Kansas and Missouri, which included a luncheon with Governor Guy B. Park of Missouri at Jefferson City, a banquet was held in honor of the famous flyer by the Kansas City Aeronautics Committee and friends of Dr. Brock.

His unbroken score of daily flights has aroused much interest among airmen here and abroad and is on file in the Federal Aviation Commission's records in Washington. Dr. Brock recently purchased a 2,700-acre tract in the Ozarks, where he has his own landing field and airport, within two hours flying time from Kansas City.

Largest Flying Boat

The first of three of the biggest flying boats ever constructed for passenger-carrying service, will be completed at the Glenn L. Martin Company plant in December and launched in her trial flight. The planes are being built for Pan-American Airways and are designed to carry passengers across the Atlantic. The second boat will be completed and get its trial flight next spring, while the third and last will take the air next summer. The Martin Company has been building the ships for two years. The planes are to be constructed of duraluminum. Each plane, when completed, will weigh 23,000 pounds empty and 51,000 pounds loaded. Four motors of 800 horsepower each will furnish the power to fly the ships, a total of 3,200 horsepower. Each of the planes will be capable of carrying forty-eight passengers and a crew of five, and when finally finished they will be equipped with sleeping accommodations and other fittings necessary for occupancy by passengers for several days.

KENNETH EBEL, engineering expert of the Martin plant, will take the first giant plane on its trial flight, which will be made before all the interior finishings equipping it for ocean travel have been installed. This flight will be over the Chesapeake Bay. Between fifty and sixty hours of flying will form the test and there will be several flights.

Air Express Increase

A gain in air express amounting to 20 per cent resulted on United Air Lines during the past month as a result of the reduction of express tariffs on all air lines in the United States. Officials of the company reported a prompt increase following the lowering of rates August 15, and statistics provided by the Air Express Division of the Railway Express Agency indicated a gain in both volume and revenue of express sent by plane.

New President

Palmer Nicholls, who has been vice president and general manager of Pacific Airmotive, Inc., since its inception in 1927, in assuming the presidency of the company following the death of W. E. "Tommy" Thomas, and the company will not only continue uninterrupted business in "serving aviation in the West," but plans an expansion program of its activities.

Pacific Airmotive, with headquarters at Union Air Terminal, has a branch in Oakland and approved service stations in Seattle and San Diego.

With the increase in the number of planes flown in the West today, Nicholls is planning an expansion of service facilities. He has been identified with aviation since 1919, is a pilot, and has a wide acquaintanceship flown at night.

Performance Record

United Air Lines has maintained a record of completing 98½ per cent of the total mileage scheduled during the past four months, during which time more than a million miles was flown monthly, and all of it with the multi-motored Boeing 247 passenger-cargo planes as the company has retired all their other equipment. Approximately 40 per cent of the mileage was flown at night.

Second Douglas Record

Just two weeks after it set a new airlines record between Los Angeles and Fort Worth, the fourth Douglas luxury transport to be delivered to American Airlines, broke the first record by nine minutes flying time between the two cities on November 26, according to company officials. Pilot Jim Ingram established both records, the first of five hours and fifty-seven minutes and the second of five hours and forty-eight minutes, for the 1,330-mile trip.

All ten Douglas planes will be delivered to American Airlines shortly after the first of the year, with a number of them scheduled for use on the southern transcontinental route.

Stinson Representative

Lee H. Smith, who recently returned to the United States from the Philippines, and rejoined the sales division of the Stinson Aircraft Corporation, has been appointed representative for Stinson in the Southwest. He has made his home in Dallas, arriving in November to take up his new duties. He flies a current model Stinson for demonstration purposes and bases his operations at the American Airlines hangar and offices on Love Field.

EPSOM DOWNS RACES ★ NOV. 17 to DEC. 15
HOUSTON'S FINEST HOTEL
Visit the South's Famous Texas State Grill . . for a Treat In Delicious Food
If it's solid comfort you are looking for then stay at the Texas State. It is Houston's newest and most modern hotel . . . grounded in the fundamentals of southern traditions of hospitality.
You'll enjoy every minute of your visit in this attractively appointed hostelry.
18 FLOORS OF CHEERFUL GUEST ROOMS
$2.50 and up
SHOWER AND TUB IN EVERY ROOM
the TEXAS STATE HOTEL
FANNIN AT RUSK heart of Houston
B. F. ORR, MANAGER

Miami Races

The seventh annual Miami All American Air Races will be held January 10, 11, and 12. One of the outstanding features of the Meet will be the Sportsman Pilot Race from New York to Miami, with big awards to be presented by Colonel Doherty. Special events for women under the direction of the "99" Club include among other features special speed events and bomb dropping.

For the first time in air meet history, Army tanks will be on the field during military manoevers.

Radio Equipment

There are 775 radio-equipped airplanes in commercial and private operation in the United States according to a survey just completed by the Bureau of Air Commerce, Department of Commerce.

The scheduled air lines lead in number of radio-equipped aircrafts with 345. Miscellaneous commercial operators, such as charter and taxi services, have 49. Business firms operating airplanes have 135 which are radio-equipped. Private owners with radio in their airplanes number 246.

Government-owned airplanes, such as those operated by the Army, Navy, Bureau of Air Commerce, other Federal agencies or state governments were not included in the study.

The 775 radio installations include 326 which are two way. The other 499 are one way, and can be used only for receiving messages.

Ports of Call

News From the Airports and Airways

Baltimore, Maryland

The possibility of Baltimore becoming the American terminus of any Europe-to-America air service looms again as a result of the statement of DR. HUGO ECKENER, advocate and operator of dirigibles, who recently told the Federal Aviation Commission in Washington that the Baltimore area was the logical terminus for a Europe-to-America air service. The recommendation of Dr. Eckener recalls the report made several years ago by Imperial Airways, a British concern interested in transocean service with seaplanes, selected the Baltimore area. It is also recalled that in 1931 after visiting Baltimore and other localities within a radius of about seventy-five miles, Dr. Eckener sailed for Germany stating that if the hoped-for service developed, passengers would disembark in New York where the line would maintain a mooring mast, and then the ships would be brought to hangars erected on the Chesapeake Bay to await the return. It is largely because of local meteorological conditions that this section has been favored.

In his testimony at Washington recently, where Dr. Eckener testified to the efficiency of rigid airhsips, he reported to the commission that, if his proposed trial passenger flights materialized, he might ask to be allowed the use of the naval dirigible facilities at Lakehurst, N. J., but that for a permanent site the vicinity of Baltimore would be chosen.

The Maryland Aviation Commission, the Baltimore Association of Commerce and other groups, here, interested in the establishment of transatlantic passenger and freight air lines, are eager to confer with Dr. Eckener, and according to DR. HUGH HAMPTON YOUNG, chairman of the State Aviation Commission, Dr. Eckener will be asked to come to Baltimore for conferences with the aviation commission and other interests.

Twenty-six different parachute jumps in sixteen events featured the air show presented at the Curtiss-Wright Airport. All participants in the show were parachute packers and the public showing of this work was the first display of its kind in Baltimore. The parachute jumps included a pull-off, in which the jumper allowed the 'chute to pull him off the wing of a plane; a race to earth from an altitude of 4,000 feet; jumps to a spot, in which the jumpers left the planes at 3,000 feet and tried to hit a spot on the landing field; double jumps, and mass jumps.

Eight jumpers, including one woman, were in the troupe which was headed by EDDIE BUTLER, of Washington. HELEN FRIGO, of Washington, a licensed pilot, was the only woman jumper.

Aviation maneuvers were a feature of the events which marked the launching of the Community Fund drive in this city. A fleet of fifteen privately owned airplanes, under the leadership of LIEUT.COL. W. D. TIPTON, aviation officer of the Twenty-ninth Division, executed formation flying over the downtown section. ALFRED G. VANDERBILT'S $67,000 cabin monoplane was in the fleet.

Beaumont, Tex.

The weekly Spot Landing Contest held at the Beaumont Municipal Airport has been a big success as an attraction for flying enthusiasts and for the local pilots. The first contest was won by LUTHER CARUTHERS, who on one occasion landed eleven inches from the spot after cutting the gun at 1,000 feet, making 180 degree turn, not allowed to use his motor after the last turn, which is good enough for a big silver cup.

A new discovery has been made about rainbows—they don't end in a half circle as you might suspect. BURTON HOLTON, local pilot, was flying around the other day after a rain and discovered that the rainbow was a complete circle, with the plane in the center. The picture was so striking that he came down in a hurry and took others up for proof.

IKE GRAY, Wing Over Club member from South America, has been visiting the States for the past month. Ike will be stationed at Brownsville upon return to his work. He has spent a big part of his vacation flying an Aeronca, which would be rather odd after the trimotor jobs he has been using.

It is with much regret that we had to see pass from our midst O. K. HARGRAVES, holder of one of the oldest licenses issued here. "Oke" was one of the most active members of the Wing Over Club, and could be found every Sunday at the airport. All the planes from the local vicinity dropped roses over his grave during the ceremony, which was very impressive.

MISS LOIS NEEL, local lady pilot and owner of the Cub Flying Service, has made several trips around Texas and Louisiana recently, points visited including Huntsville, Welch, Lafayette, Bay City and Houston.

Airport visitors for the month: BOOTS STEWART, in a Waco, stopped en route from New Orleans to Austin; an Arrow Sport monoplane, piloted by its owner, J. W. BOENING, stopped in for a visit; Shell Oil Company's pilot, A. G. HENSHAW, brought G. ELDER, R. N. HIGH and MR. SWEENEY to Beaumont in the Shell Stinson; LIEUTENANT MURCHISON came up from Fort Crockett in an A-12; SERGEANT WALLACE made a round trip from Randolph Field, San Antonio, in a Douglas; G. F. INGERSOLL, with a snappy brown and cream Monocoupe, flew in for a short visit; MARK KLEEDON, well known here for his oil operations, came in in his Black Gold Oil Company Wasp-Travelair; M. O. BOUNDS is now pilot for the Black Gold; CHARLES PETTIT'S Waco cabin, piloted by BEN BRANSON; an Eaglerock, flown by the owner, H. T. WHITE, en route from Kilgore to Galveston.

We have three new students added to the list in the past week—GORDON ASHLEY, JAMES W. CRUICKSHANK, *and* HERBERT FULTS.

Chanute, Kansas

IVAN SPONG finished recovering his Aeronca C2 and is giving his motor a major overhaul. Before tearing his motor down, Mr. Spong did considerable flying,

which has included several cross-countries.

O. E. DICKERHOOF and SUPERINTENDENT OF CHANUTE SCHOOLS L. H. PETIT flew to Hays, Kansas, the first of November. The trip was made in Mr. Dickerhoof's J67 Monocoach.

Several of the pilots from Chanute Airport went to the Coffeyville Air Show. Among those were O. E. DICKERHOOF, flying a J67 Monocoach; IVAN SPONG, flying an Aeronca C2; PAUL HIBBS, flying a Velie Kara Keen Coupe, and ALBERT PAYTON, flying a Lehrone Laird. Mr. Dickerhoof took third place in the air races.

Coffeyville, Kansas

Our most distinguished visitor of the month was the HONORABLE HARRY WOODRING, Assistant Secretary of War, and former Governor of the State of Kansas, who stopped here to refuel his Ford trimotor, en route to Washington, D. C.

Coffeyville's Fifth Annual Air Meet is now history, the show being staged Sunday, November 11, with eighteen visiting planes present, and four local ships participating. C. W. WHITTENBECK of Tulsa was the leading prize winner, taking first money in the race for ships with 100 horsepower or less engines. This race he won in his Cirrus-powered Great Lakes. In the free-for-all race, "Whitt," flying WALT EVERRET'S Warner Monocoupe, again came in first, and in addition he put on a stunting exhibition in his Great Lakes, doing his usual outside loops, inverted turns, etc., much to the enjoyment of the customers. In the bomb-dropping contest, VIC GIBSON, flying a Cessna, from Tulsa, and BEALE ROBISON, in a Karikeen, from Independence, tied for first money, each pilot dropping his sack just thirty-one feet from the mark. One unusual stunt which met with favor was the one in which LAVERNE DAWSON rode the upper wing of RAY JONES' Travelair while Jones put his ship through various stunts. The final event of the day was the parachute jump made by CARL HALL of the Inman Flying Circus.

The trimotored Ford belonging to the Inman Brothers Flying Circus is at present undergoing an overhaul in the local hangar, on its three J-5's.

El Paso, Tex.

KEN MAYNARD came through on November 25, spending the night on his way east. Another screen notable, WALLACE BEERY, crossed paths with Maynard on his way west. The flying actors apparently prefer the Southern Transcontinental route, for many have passed through El Paso lately. Transient business has been increasing steadily throughout November.

FRANK BOWMAN has just returned from a flight into the interior of Old Mexico. ARTHUR JOHNSON, Airport Manager, made a business trip to Albuquerque, and JACK WEILER reports that student flying is increasing.

Fort Worth, Texas

Los Angeles became a suburb of Fort Worth on the 19th of November when American Airlines took delivery of their second Douglas Luxury Airliner. It made the long jaunt from the factory to the Southern Division headquarters here in six hours and twenty-five minutes, including several stops en route.

MRS. C. F. KOLP, famed Southwestern aviatrix from Electra, Texas, was a recent visitor in her red and white Spartan. She met her brother, who was here with Ben Bernie's Orchestra. They attended the races at Arlington Downs during the November meet.

BILL LEWIS came in from a successful hunting trip near Alpine with his bag limit, a multi-point buck, tied to the fuselage.

HUGH S. HERNDON, who attempted a round-the-world flight with CLYDE PANGBORN, flew into Fort Worth recently to meet with executives and employees of the Cities Service Oil Company. Herndon flies a new Lycoming Stinson for the Oil Company.

A polo team composed of women and captained by MRS. SPENCER TRACY, wife of the movie actor, arrived from California for a scheduled game at the El Ranchito Polo Club. The group made the flight in their Wasp-powered Stinson.

A novel, interesting, unique and profitable angle to the flying business has been discovered and is being practiced by RAY BAUMGARDNER, namely the profession of wolf-killing. West Texas ranchers hire him to fly over and kill the predatory beasts as the cowboys flush them out of hiding.

DEWEY DODSON, chief mechanic for the large chain of Bewley's Flour Mills, now puts his flying to practical use, commuting between far-flung mills in the planes of the Ritchey Flying Service.

Meacham Field felt the influx of oil men to the A. P. I. convention in Dallas during the second week in November. Traffic was brisk with executives flying the airlines and their own private or chartered planes.

Houston, Tex.

MR. AND MRS. EVERETT STUNZ, former traffic representatives for the Bowen Air Lines in Houston, who now have charge of the Bowen Lines' Dallas downtown ticket office, located in the Baker Hotel, were recent visitors in Houston for several days last week. JOHN SHAW, former Dallas manager, now traffic representative in Houston, was in charge of the Dallas office during the Stunzes absence.

MISS FLORA BESS MAXWELL, formerly with American Airways' Houston office, is assistant to Shaw in the Bowen Houston office. Miss Maxwell is a native Houstonian.

Bowen fast service is not only in the air but is likewise available on the ground. Only recently a guest in one of Houston's hotels received an emergency call while he was in the midst of his bath. By assistance of the hotel employees, cab driver, airport attendants and Bowen representatives, the passenger was winging his way toward Dallas aboard one of those fast Lockheeds only thirty-five minutes later after receiving his call.

Pictures of the two recent football games—Rice vs. S. M. U. and Rice vs. Texas—taken during the first half of the game were rushed to the airport, put aboard A Bowen plane and were printed in the Dallas News 8:30 p. m. sport edition paper.

Joplin, Carthage, Mo., Activity

MERL CARPENTER of Joplin is flying a Salmson-Carpenter biplane that is really a little beauty. Merl, who is a machinist, built the plane from the ground up, but it would take an expert to tell that it isn't a factory-made job. It is two place and has all the streamlining and fairing that is possible. Not long ago he noticed the motor was not revving up as it should and took off a mag to overhaul it. In the meantime he installed a hot-shot battery, a coil and condenser and had battery ignition while working on his mag. After five hours of flying the battery showed practically no loss. He is going to leave it in the plane and have a switch in the cockpit so he can have either battery or mag ignition. Merl is spending his spare time in perfecting a steam motor for his plane.

MILE HIGH BAXTER made a 'chute jump at Pittsburg, Kansas, Sunday, October 28. Among the pilots present at the show were BILLY DUGAN of Neosho and BYRON MCCARTNEY of Joplin.

H. G. HARPER, who operates both Carthage and Joplin ports with the assistance of LUIS PROCTOR, has been quite busy lately. The Curtiss Junior hardly has time to cool off in pretty weather. Besides training students and carrying photographers, he chases back and forth from Carthage to Joplin and flies passengers and students at both places. One student—C. K. KOST of Joplin—grabs flying time in large chunks, thinking nothing of staying in the ship for two hours, and just a beginner, too.

The student mechanics course at the Joplin port is doing nicely. Harper acquired an old Ryan five-place and the students will get a lot of practical knowledge in motor overhauling and ship building and covering. They have installed an array of woodworking machinery and have a heated shop to work in.

Two army planes dropped in on the Carthage port Thursday, November 18. Had a couple of generals along, just cruising around.

A five-place Travelair from Bartlesville made a fast trip to Carthage a couple of weeks ago and got two Phillips Petroleum officials who were in an auto wreck and rushed them to a specialist in Oklahoma City. The ship is owned by the Phillips Oil Company.

Lafayette, La.

Along with CWA improvements at the Lafayette Municipal Airport, things are looking brighter in the flying line, too, according to GLYNNE JONES, the old maestro of the port. Glynne is developing a fine student list there and also makes weekly trips to Gueydan and Opelousas, La. On his student pilot roster are: JESS WILLIAMS, BOB NICHOLS, ALYCE ARRETTEIG, OLGA DOMINQUE, RICHARD DUBISSON, JOE HEINEN, MELCHER CAMPBELL, FRANCIS MCDANIELS, HARRY GOOCH, J. J. GILLENTINE, DAVID THOMAS, ALBERT BOUDREAUX.

Students who have soloed include: DR. W. S. HORNSBY, MRS. LEONPACKER, CYRIL HINES, JUNIOR ARRETTEIG, JOHN DEZAUCHE, and TOMMY LYTLE.

Former students now holding licenses: DONALD KEMPER, LEO GROS, the flying fire chief, BILL KNIGHTON, FITZHUGH MURRAY, LEO BULLIARD, TOMMY ELBERSON and R. E. CHAPLIN, principal of the high school. Two transport pilots in that territory are HARRY STOKES and DUDLEY AVERY.

In the municipal hangar are a Rearwin Junior, a Challenger-Robin, a Lincoln P. T., Kinner-powered, and a Fairchild KR-21. The Robin, with a huge picture of a "hot sauce" bottle on the sides of the fuselage, is owned and piloted by LEO BULLIARD, of the Evangeline Hot Sauce Company.

Special mention should be made of ROBT. L. MOUTON, Lafayette's air-minded mayor, who has been responsible for many of the improvements in the city's airport facilities. If all mayors in this section displayed as much interest, we would find a splendid array of airports.

Little Rock, Ark.

Twenty-two planes and more than fifty-five passengers and pilots took part in the recent seventh annual Arkansas Air Tour, making it the most successful tour in the history of the event. Leaving Little Rock, the tourists visited Ola, Clarksville, Ozark, Fayetteville and Siloam Springs on the first day, spending the night at Fort Smith, where the annual tour banquet was held.

The itinerary for the second day called for stops at DeQueen, Texarkana and Arkadelphia, before the

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TOP	130 m. p. h.
CRUISE	115 m. p. h.
LAND	40 m. p. h.
CEILING	16,000 ft.
CLIMB	1,000 ft./min.

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- Two place.
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return to Little Rock.

The crowds that gathered at the fields established records for the tour with almost the entire population of several of the smaller towns turning out.

An aerial bandit hunt between Texarkana and Arkadelphia featured the second day of flying. Marked cars were located along the highway between the cities and the contest required that pilots spot the cars and mark them on their maps, giving the exact location of each machine, as near as possible.

At Arkadelphia, a bombing contest was held, scores of this event and the bandit hunt being combined to determine the winner.

M. L. SHORT, representative of the Standard Oil Company of New Jersey, placed first in the combined events; LIEUT. ELLIS M. FAGAN of the 154th Observation Squadron, Arkansas National Guard, was second, and KENNETH GARRETT of Pine Bluff third.

Three ships of the Arkansas air squadron participated in the tour. Another Army plane, a P-12 pursuit ship from Barksdale Field, piloted by LIEUT. CECIL DARNELL of Little Rock, also made the tour.

JESS BRISTOW, Fort Worth, piloted a tri-motored Ford in the tour. It was the first time a multi-motored plane has been included among the entries.

CHARLES M. TAYLOR and W. F. MOODY of Little Rock, leaders of the tour, called it the most successful aviation event ever staged in the state.

Planes from all parts of the state visited the new field at Arkadelphia, Ark., Armistice Day as city officials dedicated their $35,000 airport. The field was constructed by the CWA and FERA and has two 4,000-foot runways. Both are in first-class condition.

The field will become a part of the Bureau of Air Commerce system, being lighted as an emergency field. A government weather station is to be located there.

A full-fledged air circus was staged as a part of the dedicatory ceremonies, with a parachute jump being included.

The eastbound American Airlines mail plane, en route from Dallas to Little Rock, stopped at the field during the morning, picking up mail pouches which were taken to Nashville. Special permission was obtained from Postmaster General James Farley for the stop.

A special formation flying demonstration was given by a group of planes of the 154th Observation Squadron, Arkansas National Guard, located at Little Rock.

Marshall, Missouri

WILLIAM MURRELL and RUSSELL NICHOLAS flew to Ada, Oklahoma, to look over some oil drilling work being carried on there.

LAWRENCE SHORT successfully passed his A and E test for mechanics license and is now devoting much time to the study of meteorology and navigation in preparation for his transport pilot license as soon as EARL SMITH returns with the Barling.

OLE FAHLIN has recently made two cross-country trips, one to Topeka, and upon return to Marshall he flew to Dallas.

LOUIS RUTTON has completed his small, single-place plane and is expecting to bring it to the airport for test flights in the near future.

Memphis, Tennessee

Night airmail service north and south out of Memphis by January 1 and the speeding up of east and west airmail service are foreseen here as a result of Postmaster General Farley's authorization of six additional airmail schedules in November.

The new schedules include a new round trip daily between Chicago and New Orleans, flown by Pacific Seaboard Airlines, opening date for which will be contingent upon completion of airways lighting between the two points, and another through schedule over the southern transcontinental route flown by American Airlines between New York and Los Angeles.

Emergency fields have already been completed between Chicago and New Orleans and lighting has been completed between Chicago and St. Louis. It is expected that the Commerce Department will complete the system between St. Louis and New Orleans before January 1.

"We will be ready to begin flying the night mail schedule when the lighting is completed," an official of Pacific Seaboard said November 22. CARLTON PUTNAM, President, and R. B. REINHART, Operations Chief, were in St. Louis.

Memphis will benefit from the new east-west schedule inasmuch as it will put an additional schedule in effect between Los Angeles and Fort Worth on the west. At the beginning the new schedule will be operated from Nashville by way of Cleveland to Newark until emergency fields and lighting are completed, when it will run from Nashville via Washington to Newark on the east.

Mobile, Ala.

O. M. PHELPS, General Manager of the Chamber of Commerce, announced recently that Mobile may be included on the air line of the Gulf Airways, Inc., connecting Miami and New Orleans, expected to be in operation by the first of the year. Phelps said he had been in correspondence with FLOYD BYRAM, of New York, General Manager of the Airways, for the past year, but, he added, Byram has not as yet made a definite announcement whether Mobile will be included on the route.

OSCAR N. BARNEY, Manager of Bates Field, Mobile's municipal airport, said Byram and several other officials passed through Mobile six months ago and made a survey of the field in connection with Mobile being considered a possible point on the air route.

Officials of the company announced that air lines connecting Miami and New Orleans and Miami and Atlanta by way of Tampa would be in operation by the first of the year and could complete the last link in the aerial transportation systems of North and South America, according to an Associated Press dispatch.

Negotiations have been virtually completed for the purchase of five tri-motored Stinson ten-passenger ships which will operate on a five-hour schedule from Tampa to Atlanta and a six-hour schedule to New Orleans. The ships will operate on daily round-trip schedules.

Tentative schedules call for planes to leave Miami, Atlanta and New Orleans each morning. The route from New Orleans to Miami will be by way of Mobile, Pensacola, Tallahassee and Tampa, and the route

from Atlanta to Miami will be by way of Columbus, Tallahassee and Tampa. Connections will be made both at Tampa and Miami, with the lines of the Pan-American Airways systems which serves Central and South America.

J. A. WATERMAN, of Tampa, is president of Gulf Airways, Inc., while Byram, who is vice president and general manager, is president of New York Airways, Inc., and former division manager for Eastern Air Transport.

New Orleans, La.

The state-owned Shushan Airport with its marvelous lighting, large area and smooth, long runways, is enjoying activity. Crowds to see the buildings continue just as big as ever, and new planes and ticket hawkers have stimulated the passenger-hopping business.

JOHNNY MAYNARD'S new Stinson does good work. It has flaps and apparently is getting the flappers. The old Monocoupe of Peret and Maynard will be soon retired and replaced by an Aeronca. The bulk of the student business is being successfully carried on by HENRY CHAPMAN of the Chapman Air Service, who needs his brother and JOHNESS SMITH to help him. While Henry is telling them it is not the nose of the student he wishes lowered, but that the nose of the plane is what he is referring to, his brother handles the gas. They have done away with the cafeteria, come-and-get-it gas pit. There is no pit at Shushan now. It's the triumphal march of LAWRENCE CHAPMAN on the large red Standard Oil truck, with ambitious-looking fire extinguishers, when one merely glances at a gauge or flips a filler cap.

Pilots and factory salesmen, meet your new friend, MISS LAURA FENNER, Queen of the Mardi Gras Carnival, President of the Debutante Club. Oh, how do you dual , Miss Fenner!

Just back from New York, two flights with BUDDY STEWART, signed up for private ticket. Keep the chocks on those photographers, will yer.

JULIA HARDIN is taking lessons on the Condor from ARCHIE FOX—in the hangar.

Douglases will do the Eastern Airlines' New Orleans-New York daily each way. Those Douglas transports astonified our European cousins who called them "flying hotels," as one of them ambled down to Australia right along with the specially built racers and ahead of most of them. An impressive show. If we continue to export our superior aircraft at the rate foreigners are buying them, our airlines will be inferior to the rest of the world, with the effect of our mail bidding practice. It's a shame. Go on, say it for us!

That Waco on the line is HERBERT BOTTS'. The Shell gas truck, too. He won't wear the hat that goes with the truck.

Oklahoma City, Okla.

A signed contract assures that WILEY POST, America's No. 1 Pilot, will soon be making aeronautical history from behind a desk, as president of the new Wiley Post Aircraft Corporation. This firm will manufacture the new light planes now being turned out under the name of Straughan Aircraft. At this writing, Wiley is in Bartlesville, awaiting favorable weather in an attempt to break the altitude record for heavier-than-air-craft.

Oklahoma City will soon, once more, witness the spectacle of an airplane flying above Curtiss Wright Airport (soon to be known as Wiley Post Field) in an endeavor to establish a new refueling endurance flight record. However, this time, instead of the mighty BENNIE GRIFFIN and BUTTER FINGER ROY HUNT, who staged the first attempt to break refueling records above this city, the controls will be "manned" by two lady birds, viz.: MISS JEAN LARENE, of Dallas, Texas, and MISS HENRIETTA SUMMERS, of Los Angeles, California, who recently have made several unsuccessful attempts in Chicago, and have now moved their base of operations to Oklahoma City, where it is hoped that their use of Black Gold gasoline and motor oil, plus fair weather, will allow them to successfully break the women's refueling record. KENNETH, of the old HUNTER BROTHERS refueling team, will handle the controls of the refueling ship. It is expected that the flight will attract considerable attention to the new aviation venture of MARK KLEEDON, who it is understood, is financially responsible for the new light aircraft, to be built by the Wiley Post Aircraft Corporation.

Underworld characters attempting to stage fast fade-aways from bank jobs, or other criminal activities, will find Oklahoma County a very unpopular place. SHERIFF STANLEY ROGERS has purchased a four-place cabin Waco to be used in scouting highways and dispatching deputies immediately to the scent of major law infractions. At this date he has not announced the name of the transport licensed deputy who will fly the new acquisition.

Speaking of hunting: Three lakes located on the Municipal Airport property have been a great temptation for pilots during the duck season, as the city has posted the lakes and the ducks have apparently found it out. It has been rumored that MOSS PATTERSON has contemplated the purchase of amphibian, or duck, for use as decoy on these lakes, with the avowed intention of capturing a few live ones on this posted property.

C. E. PAGE, whose firm, C. E. Page, Inc., sells more aircraft supplies than any other in the Southwest. You are wrong. (His supplies go into model airplanes only.) Has announced that the Airplane Model event to be held during the Boy Scout Circus will have more entrants than any other previous contests held here.

BILL LEWIS, U. S. District Attorney for the Western District of Oklahoma, has passed his final examination, and now carries a rating as expert ground looper. Bill recently spent five days of brushing up at Hensley Field. The brushing-up applies to dragging wing tips on runways. However, sweeping in a circle gets new wings, and they will sweep cleaner "says Bill."

CLYDE NUCKOLS recently soloed 205 pounds of young manhood in the person of WALTER B. PASCHEL, in his cabin Fairchild. Walter certainly is a fair-child. The debut was made at Wiley Post Field. As is customary the debutant entertained the boys after the flight. Soup sandwiches were served.

Students at Spartan Aircraft School may now carry complete life insurance coverage from the date of their enrollment. It is believed that this is the first time that any school has been able to offer insurance cover-

age to their students at a rate nearly parallel with ordinary rates.

Braniff Airlines will soon bid adieu to Oklahoma City and move into their new headquarters at Dallas, Texas, where they will occupy the former base of United Airlines on Love Field.

B. S. GRAHAM, well-known Oklahoma City pilot, is now aiding GOVERNOR-ELECT MARLAND in chartering his gubernatorial course. It is understood that Chebie is a member of his Brain Trust. Quite an advancement, we believe, for a transport pilot, but Chebie has always been in the exception.

St. Louis, Mo.

Private plane owners in large numbers are spanning the continent in one day's travel, according to the service records of the Robertson Airplane Service Company of St. Louis. BEN LYONS, the film actor, while making a service stop at Lambert-St. Louis Municipal Airport, announced his intention of trying to set his plane down in New York on the same day he had left Los Angeles. Lyons was piloting a Northrop cabin plane owned by the Hal Roach studio and carrying two passengers.

Professional football teams are using the air service to a greater extent this season, say officials of airplane service companies at Lambert-St. Louis Municipal Airport. A tri-motored Ford plane recently brought twelve players of a Minneapolis team to St. Louis for a Sunday game chiefly for the reason that a number of them are teachers in Minneapolis schools and they had to be home for classes on Monday morning. "RED" FOWLER, owner of the plane, was at the controls.

One of the finest cabin planes from the Pacific Coast to make a recent stop at Lambert-St. Louis Municipal Airport was the ship owned by WILLBUR MAY of May Department Stores Company fame. It is a Northrop and was built and equipped at an approximate cost of $50,000.

Failure to get the expected financial backing was the reason LAURA INGALLS, the aviatrix, did not compete in the London-Australia race, she told HARRY H. PERKINS, executive of the Robertson Airplane Service Company, while making a short visit at Lambert-St. Louis Municipal Airport. She was flying her Lockheed to California to have an overhaul job done.

The Kinner Fleet, student flying ship of the Brayton Flying School, puts more hours in the air than any other plane at Lambert-St. Louis Municipal Airport. C. E. BRAYTON is head of the school and also of the Brayton Flying Service, Inc., Stinson distributor and Stinson aircab operator.

Airline traffic agents of St. Louis are fighting hard to increase the amount of air express shipments originating in St. Louis. And when it is an unusual kind of a shipment, they see to it that a story and pictures find their way into the daily newspapers here. The newspaper publicity is an incentive for rival concerns to ship by air. Purina Mills of St. Louis shipped fifty pounds of dog biscuits to the Byrd expedition in Little America over Pacific Seaboard Air Lines to Chicago, where it was transferred to United Air Lines for Seattle. The air shipment got a nice newspaper play. WM. HOTTEL is St. Louis traffic agent for Pacific Seaboard.

W. I. GATES, former TWA transportation agent in St. Louis for three years, became operations manager for Pacific Seaboard Air Lines, Inc., at Lambert-St. Louis Municipal Airport in November. Before going with TWA he was with the Pennsylvania Railroad eleven years.

A fund of $5,000 has been set up by the St. Louis Flying Service, Inc., of St. Louis to finance the trading in of used airplanes for new ships, says W. W. KRATZ, vice president. This company is Fairchild distributor for the Central States and in the last two months has sold three Cabin "24" ships and one Gipsy "22."

MILTON D. GIRTON, manager of the Lambert-St. Louis Municipal Airport, took MAYOR BERNARD DICKMANN of St. Louis as his passenger to Miami, Fla., where the mayor invited the American Legion, assembled in national convention, to meet in St. Louis in 1935. The bid was accepted. PILOT GIRTON used a Waco cabin plane, owned by the Lambert-St. Louis Corporation of St. Louis.

Enrollment of students from foreign countries at Parks Air College, East St. Louis, Illinois, shows a decided increase for the fall term as compared to the same period of 1933. The registration by foreign countries: Canada 9, Porto Rico 1, Honduras 1, Mexico 2, and the Straits Settlements 2, making a total of 15.

Topeka, Kan.

W. G. WOOD, Manager of Topeka Flying Service and Aeronca distributor, and ROBERT HORSFIELD, the flying grocer, have just returned from Cincinnati, Ohio, flying back two new Aeroncas. Wood reports the factory in full production and doing a very nice business. This looks like the best year that the Aeronautical Corporation has had and from the appearance of sales they should rank about second place in all classes for the United States. Foreign shipments have been very good, several new ships having been sold in South America and Czechoslovakia. The new Aeronca has created quite a sensation wherever it has visited and been flown by the old-timers. It can produce what the average pilot has been used to finding only in much higher priced ships.

W. G. WOOD reports the sale of a new Aeronca to Sidles Airways, Union Airport, Lincoln, Nebraska, a new Aeronca to DALE FARRAR, Burlingame, Kansas, and the sale of a Curtis Robin to R. E. TUTCHER, of Overbrook, Kansas. He anticipates the sale of four or five more new Aeroncas this year and expects to take a quota of twenty-five new ships for next year's business.

DEE DOUGHERTY and FRANK JORDON recently made a barnstorming trip to Junction City, Kansas, for the dedication of the new airport.

FRED GRIEME, working in connection with the Topeka Flying Service, is doing some excellent photographic work for the Government. He is shooting some beautiful pictures and certainly proves the value of the Fairchild Aerial Camera along with the expert manipulation by Mr. Grieme. You know Fred is the old maestro in these parts at aerial photography.

The Topeka Flying Service reports the following students have passed their pilots license examination: TED HANN, amateur; DON SIMON, amateur; JAMES

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Three place J5 Stearman. In excellent shape, never been cracked up. Equipped with all blind flying instruments, landing lights, chutes for flares, air wheels, tail wheel. Bonded and shielded for radio. $1250 cash. Box 1025, Southwestern Aviation.

OPPORTUNITY for economical aircraft manufacturing is offered at Mobile, Alabama. A plant is available on Mobile Bay for purchase or substantial lease with foundry, machine shop, carpenter shop, paint shop and large assembly rooms which could be easily converted for aircraft manufacturing. Write Mobile Chamber of Commerce, Mobile, Alabama.

FOR SALE OR TRADE: Curtiss-Wright "Junior," Szekely powered. Both ship and motor in good condition. About 235 hours on motor and 215 hours on plane. Motor has new reinforced crankcase. Ship painted red with silver wings. Plane licensed to August, 1935. Box 1203, Southwestern Aviation.

For Sale: **Aeronca C-3, motor has just been completely overhauled.** Also parts for Lycoming, Kinner, J6, J5, Wasp and Aeronca motors. One new Aeronca right wing. Various Challenger Robin and Travelair Parts. Box 1205, Southwestern Aviation.

YOUR AGENT

One Classified Advertiser spent two dollars and sold a $1750 airplane after one insertion. Would you pay that much commission on a similar sale?

Directory and Classified Ads in Southwestern Aviation are bringing results. If you had something to sell and mailed out thirty-five hundred letters to potential purchasers, it would cost you over a hundred dollars. And you could contact the SAME markets for as little as one dollar on the classified and directory page — circulating into the hands of operators and owners, into the airports of your region.

Your best markets are "close to home"— reach them through Southwestern Aviation.

BUTLER, limited commercial. M. J. CLARKE, chief instructor for the Topeka Flying Service, received his mechanics license. The student enrollment has now reached the grand total of fifty-three.

JIMM SCHIPP, Manager of the Municipal Airport, Columbia, Missouri, and O. K. SOUTKWICK, of Springfield, Missouri, flying an OX Travelair, were recent visitors to our airport.

Waco, Texas

J. H. REEVES was a recent visitor to Rich Field, Waco. He was flying his Great Lakes en route to Lubbock from Houston. L. P. HALE, employee of the Marathon Oil Company, is the most recent student to solo the pusher. BEN HUTCHERSON and RALPH COSTON made a trip to Palestine to have a few repairs made on their Travelair.

DON DUNEVANT has made several trips down to Navasota in his Robin, recently purchased from JACK WEBSTER. The Halliburton Spartan paid us a visit in November en route from Amarillo to Austin. DALE MARETTE of Navasota also dropped in for a couple of hours visit to Rich Field. He was flying his Inland Sport. Scores of transients during November, many from out of the state.

Welcome Eavesdroppers

Civil and military officials throughout Europe are giving a lot of attention to flying euipment being used in the United States, as shown by the foreign aeronautical representatives who arrived at Grand Central Air Terminal in Glendale during or right after the race.

First came PRICE U. F. KINSKY, representing Austria, and BARAN A. KRAYENHOFF, representing The Netherlands. They were followed by CAPT. ING G. SONDERMAYER, representing Jugoslavia. Soon after there arrived MAJOR N. CHAMPSEUR, CAPT. JACQUES DE CARME *and* JEAN VOLPERT, first assistant to the chief of aviation; these three gentlemen representing France.

Vultee Sets Record

Setting a new record for commercial transport planes, a Vultee V-1A piloted by Dean Farren, accompanied by Hal Taylor, mechanic, flew from Los Angeles to Dallas recently in six hours and seventeen minutes, an average speed of 216 miles per hour. The eight-passenger plane, the same as those of the fleet in use by American Airlines, was purchased by the Superior Oil Company of Houston, for whom Farran is pilot. The Vultee plane is being used by the oil concern for contact between their offices in California and Texas.

Export

(Continued from Page 14)

pation. During this time he was afforded the opportunity to study at the University of Grenoble. Discharged in 1919, Mr. Haines returned to Hartford, where he was employed for a short time by the Travelers Insurance Company in the steam boiler section, and later as Sales Engineer for the SKF Ball Bearing Corporation. Mr. Haines during his employ there was for a period of five years manager of the western Pennsylvania district of SKF with offices in Pittsburgh. In the spring of 1929 he became actively associated with the Pratt & Whitney Aircraft Company with the duty of organizing a sales department. Later he was sent to the West Coast, where he opened a West Coast office for the company at the United Airport Burbank, California. He was appointed Assistant Sales Manager after his return and was then sent as company representative to Shanghai, where he spent a period of approximately a year during the Sino-Japanese war. Mr. Haines has recently resigned his position with the Pratt & Whitney Aircraft Company to become Assistant to the President of the United Aircraft Exports Corporation and his office will be located at the East Hartford home office.

STEPHEN A. McCLELLAN came to Hartford shortly after the formation of the Pratt & Whitney Aircraft Company and as a pilot was already identified with the experimental flight test work which the company was then carrying on at Brainard Field. Shortly following the formation of the United Aircraft & Transport Corporation, with offices in New York, Mr. McClellan was transferred to the New York office. Since that time he has been promoted to an official capacity in the New York office of the United Aircraft Exports, Incorporated, and in this latest promotion he becomes Assistant to the President of the new Export corporation in charge of the New York office located at 230 Park Avenue, New York City. Mr. McClellan holds the rank of Captain in the Marine Corps Reserves and consequently has been able to maintain his active flying experience.

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Laird Sesquiplane

(Continued from Page 13)

struction. It consists of a pair of oleo pneumatic struts, with a travel of six inches, the top ends of which are pressed into the socket in the lower wing structure as above mentioned, while at the lower end or piston end of the struts are attached the wheel forks with 27-inch streamline wheels, streamline housings or pants around the wheels and oleo struts fairing into the lower wing panels and around the landing lights located in the leading edge of the wings just ahead of the oleo struts, completes the landing gear. This arrangement produces a gear of very clean design offering a minimum of head resistance and minus the mechanical difficulties of other types of landing gears. The tail wheel gear is fitted with an oleo pneumatic strut, also of six-inch travel, and a 10½-inch streamline wheel that swivels 360 degrees. The design of the tail gear is such that when the wheel strikes a rut or bump it has an aft movement equal to about one-half the vertical movement or about three inches. This is of real value to the operator as it will eliminate a large percentage of tail wheel gear breakage when operating out of rough or frozen fields.

Tail Surfaces

The entire tail surfaces are constructed of 24ST aluminum alloy and are of the smooth skin full cantilever type. Elevator and rudder hinges are fitted with Fafnir ball bearings. Specially hammered aluminum fairings streamline the fixed tail surfaces and also the wings at their points of attachment to the fuselage.

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AT THE SCHOOLS

Boeing

A new aeronautical science laboratory equipped with facilities covering instruction of scientific phases of aeronautics has been established at the Boeing School of Aeronautics as a result of the addition of a course of aeronautical science to the ground school curriculum, according to A. F. Bonnalie, Director of Technical Instruction. The course is designed to impart fundamentals of physics as applied throughout the work of various aeronautical subjects.

Curtiss-Wright

Students of the Curtiss-Wright Technical Institute of Aeronautics under supervision of the faculty, have designed, and now are building a single-place, high-wing monoplane as a major problem in the school's regulation courses in practical training.

The faculty outlined the basic design and the engineering students developed the details. When the plans and specifications were completed, the engineering students joined the master mechanic class in the construction.

The plane has a wing spread of 24 feet, an overall length of 17 feet, a wing area of 73 square feet and a gross weight of 600 pounds. The fuselage is of welded tubular construction and the wings have wooden spars and ribs. Exclusive of the Aeronca engine, the cost of materials will total less than $500.

Ryan

Three planes, including the new Ryan S-T and two Great Lakes, represented the Ryan School of Aeronautics, San Diego, at the American Legion Air Meet held at Fresno, California, on November 10 and 11. Making the flight were John Fornasero, James Fornasero, Earl D. Prudden, Orva Johnson and Neal Wagar. The latter is finishing his transport course at the Ryan school and made the flight in his own Great Lakes plane. One of the feature events of the Sunday afternoon program was the exhibition flight of the new Ryan S-T with John Fornasero, Ryan chief instructor, at the controls.

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